G. B. Paravia & C.
CORSO RACCONIGI 16 - TORINO (ITALIA)

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MODELS AND CHARTS

OF

HUMAN, ZOOLOGICAL AND BOTANICAL ANATOMY

NEW SERIES OF SIX CHARTS OF HUMAN ANATOMY. Edited by Dr. Iorio Alovisi and Dr. Filippo De Cecco, paintings by Umberto Ciompi. This new series of wall charts is based on strictly scientific criterions, doing away with substantial defects of similar charts. On account of their accuracy of particulars and their copious terminology, these charts are suitable for advanced studies, representing an indispensable help for teaching human anatomy. The reproduction uses twelve colours on a lightcoloured back ground which allows exact visibility of the particulars, even from a distance. Size: c. 80 x 120 cm.

1. **Tav. I: The Human Skeleton.**
2. **Tav. II: The Muscles of Man (front).**
3. **Tav. III: The Muscles of Man (back).**
4. **Tav. IV: The Human Trunk and Interior Organs, Respiratory, Digesting and Urinary Systems.**
5. **Tav. V: The Circulatory System.**
6. **Tav. VI: Nervous System.**

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

Models of Human Anatomy Reproduced from Life

NOTICE. - *The models of the list below represent a speciality of our House, to which we have been dedicating years of studies and experience, finally securing a series of scientifically devised appliances which fully correspond to didactic needs, to which they are assigned. They are made of a special mixture, the main components of which are kaolin, plaster, pieces of strong textile fibres, paper and special glue-like substances. The plastic material obtained is — though particularly light — of great solidity and of remarkable elasticity. Thanks to its pronounced plasticity our mixture allows the reproduction of the most minute particulars in high and low relief.*
All our models are coloured with vivid and fast tints, perfectly imitating natural colours, sometimes made conspicuous to afford a better visibility of the particulars, even from a certain distance. The colour is fixed to the cellulose by a patina of varnish, uniformly applied according to modern aerographics. The conservation of our models does not require any special care, and their durability is practically unlimited.

ORGANIC TISSUES OF MAN AND ANIMAL. Our stock of plastic models was without a series of reproductions which illustrate the fundamental part of the studies of human and animal anatomy, namely a number of models which reproduce — appropriately enlarged — the various types of tissues which make part of the structure of the human and animal organism. With the models classed below, which we present here for the first time and with which our House fills up a gap in the province of didactic equipment, we are able to provide the scientific collections of schools with a most useful material which to a large extent will help the pupils to understand and remember one of the most important chapters of scientific studies.
The series is made up of 4 models (size: c. 49 x 36 cm.) and illustrates the following subjects:

7. Epithelial Tissues (composed ground epithelium — cylindrical epithelium (vibratile) — simple ground epithelium — cubic epithelium — tubular gland — salivary gland — the skin and its appendages).

8. Connective Tissues (adipose — fibrillar — cartilaginous — osseous — bone cell — the blood).

9. Muscle Tissues (white fibres (involuntary) — red striped fibre (voluntary), as a whole and in its particulars — modullary sheath).

10. Nerve Tissues (neurons — nerve cells: taste, smell, touch, sight etc. — medullated fibre with neurolemma — bundle of medullated fibres — nervous arc of reflexes).

11. TRUNK OF ADULT MAN, in natural size, with head. The assembled model is composed of 22 parts including the torso. All the principal organs may be removed; they are also sectionized to show the characteristic structure of the various tissues. A list with more than 160 explanatory numbers, which refer to the corresponding numbers on the various organs of the model, is added.

12. TRUNK OF ADULT MAN, in natural size, with head. The model is composed of 16 parts including the trunk. On the whole, this model is similar to the preceding, the number of sectionized parts being slightly smaller. A list of more than 140 explanatory notes is added.

13. TRUNK OF YOUNG MAN, in natural size, with head. The model can be taken apart into 10 parts, is a little smalled than the preceding types and not so rich in details. It is a most suitable model to answer the purpose of teaching anatomy in any kind of school.

14. LARYNX, TRACHEA, BRONCHIA, LUNGS, HEART AND LARGE VESSELS: Model in natural size. The Larynx is connected to the hyoid bone. Both lungs are dissectible; they may be taken out and be examined separately. The aorta, the inferior vena cava and the superior vena cava are visible.

15. RESPIRATORY SYSTEM in natural size. The model represents half a trunk with the organs of respiration, the heart and the principal blood vessels. The trachea with the thyroid gland is also visible. The lungs are dissected in such a way that they show the inside ramifications of the bronchia. The heart is removable, as well as the left half of the face. This section allows to study the nasal cavities and the respiratory system. In front, the ribs, the vertebral column and the left lung are visible.

16. HEAD, NECK AND MIMIC MUSCLES in natural size. The right half of the model serves to study the outside form, the left half permits to study the muscles of face and neck. An important particular shown are the mimic muscles which are of great importance for the physiognomy of man.

17. HALF HEAD AND HALF NECK with superficial muscles, vessels and nerves. The model, on a base c. 45 x 50 cm. presents all anatomical particulars of the head and the neck.

18. HEAD AND UPPER PART OF NECK dissected in the median plane. The model — in natural size — represents a cranial and cerebral portion, and a facial portion; it shows in addition the glands annexed to the brain, the

nasal fossae, the cavity of the mouth, the isthmus of the jaws, the pharynx, the larynx, the tonsils and all the organs which regulate the swallowing and the respiration.

19. THE BRAIN in Flechsig's frontal and longitudinal section: model in natural size dissectible into 4 parts, besides the brain pan. The model shows all important anatomical particulars.

20. TREGEMINAL NERVE. This model — slightly enlarged by half a head — shows one of the most important cranial nerves, which presides over the sensibility of almost the whole head and over the function of the chewing muscles.

21. THE HAND and corpuscle of Pacini. This most interesting model shows the whole innervation of the palm of the hand. The corpuscle of Pacini — greatly enlarged — gives the exact representation of the structure of the tissues which form it.

22. TEETH. This model is 5 times enlarged and represents the right half of the mandible of a child of 5 years. The roots of the deciduous teeth are shown, as well as the permanent teeth in their development and their relations with blood vessels and nerves.

23. MANDIBLE, TONGUE, LARYNX AND TRACHEA. An enlarged model which shows the jawbone, the tracheal rings, the thyroid gland, the position of the teeth in the alveoles, the papillae, the tinsel of the tongue, the foramen caecum, the architecture of the muscles of the tongue and the topography of the sublingual glands. The front part of the mandible with the set of teeth up to the penultimate molars is removable.

24. MUSCLES OF THE LARYNX. Twice enlarged. The cricothyroid muscle and the dilator of the glottis are represented.

25. THE LARYNX, ITS CAVITY AND THE THYROID GLAND. Twice enlarged. This model of the speech-producing organ allows to illustrate the intrinsic muscles of the larynx, as well as the form of the cavity. The model is dissectible in a sagittal median plane. It clearly shows the thyroid gland, the most important organ for the normal development and the preservation of the harmony between the various functions of the organism.

26. THE SPINAL CORD AND THE BULB OF THE BRAIN. Model in natural size. It shows the medulla oblongata and the bulb seen from the back

with the proximal part to the 31 spinal nerves to the right, in each of which may be distinguished the roots, the trunk and the ganglion. The internal conformation of the spinal cord is shown in an enlarged segment.

27. THE HEART. Enlarged model, open in front to show the ventrical cavities. The model is dissectible into 2 parts. The heart is cleft in a vertical plane and shows the valves, the entrance of the arteries and veins, especially the bicuspid and tricuspid valves, as well as those at the entrance of the aorta and the pulmonary artery, and also the ramification of the aorta itself.

28. THE ORGAN OF HEARING AND THE EAR-LAP. Model on pedestal, considerably enlarged. It shows the auditary passage, the cavity of the middle ear and the connection with the mastoid bone. The tympanum and the ossicles are removable. The side wall of the receptable of the tympanum and the general conformation of the internal ear are well visible.

29. THE ORGAN OF HEARING. 10 times enlarged and completely dissectible. This model shows the internal ear with its canals of equilibrium, the cochlea etc.

30. THE HUMAN EYE WITH THE LAYERS OF THE RETINA. Enlarged 5 times. On one base there are a dissectible model of the eye-ball and two small charts in low relief, of which one represents a microscopic section of the front hemisphere of the bulb, and the other the structure of the retina.

31. THE HUMAN EYE, THE ORBIT AND ITS CONTENTS. Enlarged 5 times and dissectible into 11 parts. This model shows the eyeball with the muscles that move it, and on the upper rectus a part of the elevator of the upper eyelid, as well as a part of the ophthalmic nerve. The lachrymal gland is well visible, and the relations between the organ of sight and the socket are demonstrated in particular.

32. THE HUMAN EYE. Enlarged 5 times. The eye-ball on base. The model is dissectible into 2 halves. The cornea, the iris, the crystalline lens, the vitreous humour are removable. On the bottom the artery which branches into the choroid is made visible. On the outside the co-ordinated muscles which turn the eyes may be seen.

33. THE TONGUE. Model enlarged 3 times. It shows the muscles of the tongue, the arteries and the nerves. At the same time the papillae are reproduced.

34. STOMACH, DUODENUM, PANCREAS. In natural size. The model comprises 5 preparations: The one in the middle represents the stomach, the duodenum, the pancreas and the large abdominal vessels in their mutual relations. The stomach may be opened to show the structure of its interior walls. The 4 preparations at the corners represent — much enlarged:

a) a mucous membrane of the stomach;

b) the microscopic structure of the same;

c) the microscopic structure of the glands of the stomach;

d) a view of the mucous membrane showing the gastric fossae.

35. THE SKIN. A section, 100 times enlarged. The model shows in relief the different formations which constitute the common integument. The subordinate parts, the hair, the sweat glands and the nerve ends are also shown.

36. THE KIDNEYS, and the urine-excreting organs: The model is dissectible and represents the kidneys and the suprarenal glands in natural size. A corpuscle, a tubule and a lobule of the kidneys, however, are represented enlarged.

37. THE KIDNEY, the renal cavity and the beginning of the ureter. The model is 2½ times enlarged, stands on a pedestal and has a hinged opening. The 2 sections resulting from it show the artery and the veins of the kidney, as well as their ramifications in the inside of it. The ureter, the cavity and its ramifications, the pyramids and the cortical substance which covers them are clearly shown.

38. SKELETON OF THE HAND. In natural size. The reason for the importance and the utility of this model may be found in the fact that wall charts which give a good idea of the greatest part of the bones which constitute the skeleton, are insufficient to illustrate the bones of the hand which, as they are small and numerous, form a solid, elastic whole, which varies in its form.

39. SKELETON OF THE FOOT. In natural size. The characteristic disposition of the tarsal bones, the general form of the arch of the foot, its points of support, which are of such a great importance for the manner of standing and walking, may be well studied by means of this model.

40. THE ARM. In natural size. The model shows the anatomical structure of the muscles of the arm as they appear after removing the skin, the subcutaneous tissue and the fascia. The nerves and the arteries which run between the superficial muscles are also represented.

41. THE LEG. In natural size. The model shows the superficial structure of the muscles of the leg, as well as the muscles and tendons of the dorsal region and the sole of the foot.

42. THE ANIMAL KINGDOM. Series of 12 charts edited by PROF. GAZZETTI. Lithography in vivid colours. These charts are most useful for teaching the external anatomy. Size of each table: c. 73 x 103 cm.

Tav. I: Domestic animals.

Tav. II: Wild animals.

Tav. III: Insects, Crustacea, Arachnida, Worms, Myriapoda, Mollusca (in preparation)

Tav. IV: Fish.

Tav. V: Reptiles and Amphibia.

Tav. VI: Birds: birds of prey, climbers, birds of noise.

Tav. VII: Birds: song-birds, gallinaceous order, doves.

Tav. VIII: Birds: runners, wading-birds, palmipeds.

Tav. IX: Mammals: quadrumanes, volitant order, insectivorous order, Rodentia.

Tav. X: Mammals: carnivorous and pinniped orders.

Tav. XI: Mammals: Proboscidea, Artiodactyla (Pachydermata, Ruminants).

Tav. XII: Mammals: Perissodactyla, Cetacea, Edentata, Marsupalia, Monotremata.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

43. ANIMALS USEFUL TO AGRICULTURE. A chart (size: c. 73 x 103 cm.) which shows 43 figures executed with scrupolosity and scientific exactness. The subjects are in natural size and in vivid colours. The table comprises all animals useful to agriculture: insects, birds, mammals, reptiles etc.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

44. ANIMALS NOXIOUS TO AGRICULTURE. Series of 2 charts representing about 120 of the most important specimens, subdivided according to the classical order. Size of each table: c. 73 x 103 cm.

Tav. I: Coleoptera - Lepidoptera - Ortoptera.

Tav. II: Emiptera - Imenoptera - Diptera - Acaridae - Nematoda - Gastropoda - Roditora.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

45. THE RATIONAL SILK PRODUCTION. A chart (size c. 73 x 103 cm.) which illustrates the principles of silk production.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

THE HORSE. Series of 3 charts, showing in its particulars the anatomy of the horse, the external parts of the body and their nomenclature. The size of each chart is c. 73 x 103 cm.

46. Tav. I: External parts. **47. Tav. II: Muscles.**

48. Tav. III: Inner organs.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

THE COW. Series of 3 chart representing the anatomy of the cow, the external parts of the body and their nomenclature. Size of each chart: c. 73 x 103 cm.

49. Tav. I: External parts. **50. Tav. II: Muscles.**

51. Tav. III: Internal organs.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

THE HEN AND CHICKEN FARMING. Series of 4 charts. Size c. 73 x 103 cm.

52. Tav. I: Skeleton and internal organs of the hen.

53. Tav. II: External conformation of the hen and the cock.

54. Tav. III: Natural and artificial incubation.

55. Tav. IV: Natural and artificial raising of chickens.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

56. THE ALIMENTATION OF PLANTS AND ANIMALS in the cycle of matter. A very interesting and instructive chart which represents — schematically and synthetically — the chemical and physiological phenomena of plants and animals in relation with the atmosphere and the soil.
Size c. 73 x 103 cm.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

Plastic Models of Animals and their Anatomy

57. THE SILKWORM. This new model, minutely devised, has proportions that are easy to handle (enlargement 9 times) and is executed with such precision that the smallest particulars, which pertain to the anatomy of the silkworm, are well visible. The muscular system, the blood circulation, the nervous system, the parts of the mouth, the salivary and serical glands (secreting saliva and silk), the malpighian bodies, the digesting system, the sexual glands, the stigmatic apertures etc. are made obvious to the eye.

THE MOUTH OF THE PRINCIPAL INSECT ORDERS. Original series of 6 half-schematical models, representing each the head of a specific order of insects, with the different parts of the mouth.

58. Coleoptera

59. Imenoptera

60. Lepidoptera

61. Rhynchota

62. Diptera (sucking type: fly)

63. Diptera (piercing type: gnat)

SCHEME OF BLOOD CIRCULATION OF VERTEBRATES AND INSECTS. Series of 4 models (size: c. 40 x 65 cm.). The first 3 models represent schematically but completely the blood circulation (marked with arrows):

a) of mammals and birds;

b) of reptiles and amphibia;

c) of fish and tadpoles. The circulatory system is extended to the lungs and the branchiae, the intestine, the kidneys and the heart which is represented in section and shows besides its internal structure the entrance and the outlet of veins and arteries.

d) of insects, as well as their respiratory system.

64. Blood circulation of mammals and birds.

65. Blood circulation of reptiles and amphibia.

66. Blood circulation of fish and tadpoles.

67. Blood circulation and respiration of insects.

68. **THE TAENIA AND ITS BIOLOGY.** A new plastic model mounted on a base (c. 49 x 36 cm.) showing the reproductions of the anatomical particulars at great enlargement: proglottides of « *Taenia saginata* » and « *Taenia solium* » in sections showing the reproductive organs; anterior proglottides with scolex of « Taenia saginata »; proglottides of « Taenia solium »; cysticercum of « Taenia serrata »; cysticercum of « Taenia saginata » in measly flesh; portion of a chain of proglottides with scolex of « Taenia solium ». Some of the above-mentioned particulars may be turned on a metallic hinge, and may be taken off the base.

69. **THE VEGETABLE KINGDOM.** Series of 10 wall charts edited by Prof. Gazzetti. Lithographic execution in vivid colours. Size: c. 73 x 103 cm. Most useful reproductions to study the external morphology of a great number of plants and to get used to the immediate individuation of the most common plants.

Tav. I: Edible and poisonous mushrooms.

Tav. II: Edible and poisonous mushrooms.

Tav. III: Ornamental plants.

Tav. IV: Garden plants.

Tav. V: Garden plants.

Tav. VI: Aromatic plants of domestic use.

Tav. VII: Cereals and forage.

Tav. VIII: Poisonous plants.

Tav. IX: Fruit plants.

Tav. X: Fruit plants.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

70. **ORGANOGRAPHY OF PLANTS** edited by Prof. Voglino, Prof. Roda and Prof. Bongini. This series of 10 charts represents some of the principal families of the dicotyledons of the Italian flora. Size of each chart c. 73 x 103 cm.

The coloured charts in particular show the morphological structure of the plants and are more than sufficient to teach the principal elements of organography of plants. A list of the families that are represented with the reproduction of typical specimens follows:

Tav. I: Oleaceae (Olive)
Tav. II: Solanaceae (Potato)
Tav. V: Umbrelliferae (Carrot)
Tav. VI: Rosaceae (Rose)
Tav. VII: Papilionaceae (Pea)
Tav. IV: Compositae (Daisy)
Tav. III: Labiatae (Sage)
Tav. VIII: Cruciferae (Colza)
Tav. IX: Linaceae (Flax)
Tav. X: Cannabinaceae (Hemp)

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

NEW SERIES OF FOUR CHARTS complementary to the preceding charts **OF ORGANOGRAPHY OF PLANTS.** Size of each chart c. 73 x 103 cm.

78. **Tav. I: Cryptogamia:** Algae (Fucaceae); Mushrooms (Peronosporaceae); Mushrooms (Agaricinaceae); Lichens.

79. **Tav. II: Cryptogamia:** Mosses (Muscineae); Lycopodium (Lycopodiaceae); Equisetaceae; Ferns.

80. **Tav. III: Gymnosperms** (Conifers): Pinaceae; Abietineae; Cupressus.

81. **Tav. IV: Monocotyledons:** Graminaceae; Liliaceae; Iridaceae; Orchidaceae.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

BIOLOGY OF PLANTS edited by PROF. CANELLA. Series of 12 coloured charts, comprising about 100 figures. Size of each chart c. 73 x 103 cm.

82. **Tav. I: The successive phases of mitosis.**

83. **Tav. II: Vessels and Tracheae.**

84. **Tav. III: The Tissues.**

85. **Tav. IV: Roots and radical hair.**

86. **Tav. V: Stems.**

87. Tav. VI: Leaves, leafy and floral hair.

88. Tav. VII: Structure of the flower.

89. Tav. VIII: The flower and its pollination.

90. Tav. IX: The flower and its fecundation.

91. Tav. X: Ovaries and Ovules.

92. Tav. XI: Fruits and seeds.

93. Tav. XII: Fruits: Gymonosperms and Angiosperms.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

THE RATIONAL CULTIVATION OF THE MULBERRY BUSH. A chart (size c. 73 x 103 cm.) which shows the most important systems applied on a rational plantation, all sicknesses of the mulberry bush, the noxious insects etc.; moreover it gives instructions for the pruning and planting, etc.

A. On loose folio. - **B.** On canvas with rings. - **C.** On canvas with rollers.

Model of Flowers

NOTICE. — *The below-mentioned models are reproduced from life; they are made of the special mixture described on page 2 of this catalogue. The perfect plasticity of our mixture was especially useful for these models of flowers, which show even the most capillary nervatures. All models are accompanied by ample directions.*

SCHEMATIC FLOWERS

95. SCHEMATIC TYPE OF A DICOTYLEDONOUS FLOWER, much enlarged. The model is dissectible into the 4 verticils of a tetracyclic flower. Each verticil is turnable round the vertical axis of the flower, which allows that they may take each other's positions. The ovary is dissectible into 2 pieces to show the placentation which, in this model, is in the centre.

96. SCHEMATIC TYPE OF A MONOCOTYLEDONOUS FLOWER, much enlarged. This model, dissectible into 7 parts, permits to represent in one model the following 3 families: Liliaceae, Iridaceae and Amaryllidaceae. The

representation of these 3 families is possible, as the disposition of the 7 parts which compose the model may be changed. It should be borne in mind that of the two verticils of the androecium there is only one in the family of the Iridaceae. The model is sold with a direction for its use.

GYMNOSPERMS

CONIFERS

97. THE PINE (*Pinus pinea*). The model presents a strobile in natural size and a scale considerably enlarged. The strobile is dissectible into 2 picees in a longitudinal section in connection with a transversal section, which allows to see the characteristic tile system of the scales forming the cone, and the position of the seeds. The scale, much enlarged, is also dissectible at the part which represents the seed, of which the cortex may be removed.

ANGIOSPERMS DICOTYLEDONS

CARIOPHYLLACEAE

98. THE CARNATION (*Dianthus silvaticus*). Model 10 times enlarged. As representative of this family the wild carnation was chosen which is typical for the fringed margin of the corolla. The model is dissectible into 3 parts: calyx; corolla with the androecium; gynaeceum with its characteristic lyre-like style.

99. RANUNCULUS (*Ranunculus acer*). We chose this species as representative of the Ranunculaceae, as it is one of the most common. The visibility of the various parts of the flower — the model is much enlarged — is such as to make the dissection of the model unnecessary.

CRUCIFERAE

100. THE WALLFLOWER (*Cheiranthus cheiri*). The model, 8 times enlarged, is dissectible into 5 parts: calyx, corolla, androecium, gynaeceum (dissected into 2 parts in a vertical plane). The model conveys a clear picture of the cruciferous corolla (typical for the family), and also of the tetradynamian androecium. The section of the gynaeceum allows to study the structure of the siliqua.

ROSACEAE

101. THE WILD ROSE (*Rosa canina*). The enlarged model of the dog-rose is 5 times enlarged. The model is not dissectible except for the carnose calyx to show the seeds which afterwards change into achenes.

102. THE CHERRY TREE (*Prunus cerasus*). This species of the Rosaceae, of the genus Prunus, was chosen to demonstrate the difference between the feminine organ of the preceding model N. 42506 which originates a pseudo-fruit containing achenes, and that of the cherry tree which produces a drupe. The pistil is dissectible. Enlargement 7 times.

LEGUMINOSAE

103. THE PEA (*Pisum sativum*). The model is 6 times enlarged, and reproduces the flower of the pea with all its particularities, especially the delicate structure of the corolla with the characteristic reticulate nervature. The model is dissectibles into 9 pieces: calyx, corolla (4 parts), androecium (2 parts), pistil (2 parts).

MALVACEAE

104. THE COTTON PLANT. (*Gossypium herbaceum*). The model is much enlarged and shows the following parts: the external bracteate involucre with the 3 deeply laciniated bracts, of which one is removable; the small calyx and the juncture of the corolla; the monadelphous androeceum; the upper part of the pistil.

VITACEAE

105. THE VINE (*Vitis vinifera*). The model is 40 times enlarged and dissectible into 2 parts, of which one represents the headed calyx, the other the androecium and the gynaeceum, the latter being transversally dissected in a horizontal plane in order to show the internal structure of the berry.

LINACEAE

106. THE FLAX (*Linum usitatissimum*). The model is 8 times enlarged and dissectible into 3 pieces: calyx, corolla with androecium and the upper half of the androecium.

PRIMULACEAE

THE DAISY (*Primula acaulis*). The flower is greatly enlarged and reproduced with 2 different models, each on a separate base. One represents the flower with a long style, the other one with the short style. They therefore serve to demonstrate the phenomenon of Heterostylia, which is so important for the process of pollination. Both models are dissectible. It is advisable to acquire both models in order to be able to study the difference between the 2 types.

107. The flower with long style.

108. The flower with short style.

CONVOLVULACEAE

109. THE BINDWEED (*Calistegia saepium*). The model, 4 times enlarged, is dissectible into the following parts: calyx, corolla, pistil (dissected). This flower was chosen to represent the family of the Convolvulaceae, as it is one of the most important.

SOLANACEAE

110. THE BELLADONNA (*Atropa belladonna*). The model of this important medical plant is greatly enlarged and dissectible in order to make well visible the various parts which compose it.

111. THE TOBACCO (*Nicotiana tabacum*). Enlargement 5 times. The flower of this important industrial plant, is reproduced in this model whit many dissectible particulars which facilitate its study.

112. THE POTATO (*Solanum tuberosum*). Enlargement 8 times. The model is dissectible into calyx, corolla, the 5 stamens, which may be removed, and into the pistil which is dissected in a horizontal plane.

LABIATAE

113. THE COMMON SAGE (*Salvia officinalis*). The model is 7 times enlarged and dissectible into calyx and corolla. The model shows the play of the stamens which lower themselves when the flower is visited by an insect.

URTICACEAE

114. THE STINGING NETTLE (*Urtica dioica*) is an important plant of the medically and scientifically characteristic group. Our model shows the masculine and feminine flowers and a stinging hair (dissected and greatly enlarged). The external morphology and the internal anatomical structure are made obvious to the eye, thus contributing to the great didactic value of the model.

SCROFULARIACEAE

115. THE SNAP-DRAGON (*Antirrhynum majus*). This model, much enlarged, represents the flower of one of the most typical of the family of the Scrofulariaceae. It is dissectible into calyx and corolla; the latter may be opened in a vertical plane in order to be able to study the position of the stamens and the pistil.

CAMPANULACEAE

116. THE BELL FLOWER (*Campanula medium*). The size of the flowers of this plant allows to limit the enlargement to 5 times. The model is not dissectible, as the structure of the flower allows to study all important organs.

COMPOSITAE

117. THE CAMOMILE (*Matricaria chamomilla*). Enlargement 8 times. Two models are presented on one base: a tubulous flower and one half flowering, with peripherical ligulate flowers. One of these is removable.

GENTIANACEAE

118. THE GENTIAN (*Gentiana acaulis*). With this model, recently executed, we represent a family of the dicotyledon, which is most important for therapeutics. The 2 items represented are the internal flower dissectible into 2 parts, and the second illustrates the flower dissected in half in a longitudinal plane. Thus the calyx, the corolla, the androecium with the 5 stamens, and the gynaeceum with the fusiform ovary become well visible. Enlargement about 7 times.

ANGIOSPERMS MONOCOTYLEDONS

AMARYLLIDACEAE

119. THE NARCISSUS (*Narcissus poeticus*). In Italy, this flower is the typical representative of the Amaryllidaceae. Enlargement 3 times. The ovary is dissectible to show the placentation; all other parts are perfectly visible, without further dissectible of the model.

120. THE SAFFRAN (*Crocus sativus*). The model represents the internal plant. It is 4 times enlarged, dissectible into 3 parts which are united on a rectangular base. The tuber bulb is dissectible into 2 pieces in order to show the internal structure. The 3 stigmata which produce the important drug are clearly visible.

Models of Cryptogams

121. THE WHITE MOULD (*Mucor mucedo*). Model on a chart of c. 46 x 39 cm. (with holder for vertical presentation). The mycelium, the sporangium with the spores, the phenomenon of the copulation and of the formation of the zygospore are represented. One half of the sporangium which appears still closed, is removable in order to show its structure.

122. THE BACTERIA. The model, considerably enlarged (Size: c. 46 x 39 cm. with holder for vertical presentation), shows the forms and the reproductions of the following 10 types of bacteria:

Micrococcus,	**Staphylococcus,**	**Spirillum,**
Diplococcus,	**Bacterium,**	**Beggiatoa,**
Streptococcus,	**Bacillus,**	**Cladothrix.**
	Vibrio,	

The model represents also the reproduction by scission, as well as the germination of a spore.

123. THE REPRODUCTIVE ORGANS OF FUNGI. The model (as if seen under the microscope) represents the various reproductive organs — isogamous and heterogamous, — and the agamic organs (conidiophores, basidi, asci etc.) of the different groups of inferior and superior fungi (Phycomycetes and Myxomycetes). Size of chart 46 x 39 cm. (with holder for vertical presentation).

124. THE SPORES OF THE FUNGI. This model (size: 46 x 39 with holder for vertical presentation) represents — greatly enlarged — 6 groups of different spores of fungi (conida, ascospores, basidiospores), hyalinospores, feospores continual or septal spores. The nomenclature used is by Saccardo.

125. PROTHALLIUM OF MALE FERN (*Nephrodium filix mas*) with prickles and acclusoria. The model (c. 40 x 30 cm.) presents: the acclusorium longitudinally dissected and much enlarged; a portion of the prothallium with fecundated acclusorium which is developing the embryo (enlarged 60 times); an antherozoid (greatly enlarged). This model is very useful to study the constitution of the prothallium deriving from an agamic spore, which originates a new fern by means of the sexual organs.

126. THE FERMENT OF THE BEER AND THE WINE (*Saccaromices*). The model represents the ferment, which is so important as a transformer of the glucose into alcohol, at the moment of its reproduction by gemmation, when the filial cell is about to separate from the mother cell.

127. EVOLUTION OF THE SPORANGIUM OF THE MALE FERN. The model — greatly enlarged — represents the successive stages of the development of sporangium of a hair, and the mature sporangium.

128. ANTHERIDIUM AND ARCHEGONIUM OF MOSSES. The model (on a base) represents — considerably enlarged — the sexual organs of the mosses (Antheridia and Archegonia). The model of the antheridium — 700 times enlarged — shows the protoplasmic bodies which originate the antherozooids, of which some are leaving the upper aperture. The body of the archegonium — c. 400 times enlarged — shows clearly the canal and the oosphere which successively is changed into an egg after the union with an antherozoid.

Model of Hepatica

129. THE LIVERWORT (*Marchantya polymorpha*). One of our latest models illustrating a dioecious plant of the Thallophyta, a common plant on humid ground and on fertile soil, on walls and in shadowy places. The various particulars of the plant are considerably enlarged, mounted on one base, namely: the thallus with the capsules containing the propagola; the antheriferous umbel (masculine); the archegoniferous umbel (feminine) with the corresponding antheridia; the archegonia and a mature sporangium with spores and elaters. Seven small models are represented, of which 3 are removable from the base.

130. MODELS FOR THE STUDY OF THE PHYLLOTAXIS. The series of the diverse arrangements of leaves (see below) are sold separately and as a complete collection. A wooden base is common to all series. On it, the different pieces constituting the series, may be inserted; namely:

a) a wooden cone with a congruous number of artificial leaflets. The cone represents the branch and may be turned on a pivot (33 cm. high; diameter 5 cm. at the base, and 4 cm. at the upper extremity). On it there are represented in yellow the orthostichies, the knotty planes in white, the spiral in red (for the cyclic arrangement), while the background is green. The cone has holes for the insertion of the leaflets.

b) a little board of the form of a trapezium on which the development of the cone is represented.

c) a board on which the horizontal projection of the arrangement of the leaves is represented.

I. Opposed Disposition (2 leaflets for each knotty plane); the angle of divergence between the growing leaves on the knotty plane is 180°. The series comprises pieces a/b/c described above.

II. Ternate Disposition, (3 leaves arranged in a whorl on each knotty plane); the angle of divergence between the leaves of 2 succesive knots is 120°. The series is formed of the pieces a/b/c described above.

III. Scattered Disposition. Cycle of leaves 1/2: the angle of divergence between the leaves of 2 successive knots is 180°. The series contains pieces a/b/c as described above.

IV. Scattered Disposition. Cycle of leaves 1/3: the angle of divergence between the leaves of two successive knots is 120°. The series is formed by pieces a/b/c as described above.

V. Scattered Disposition. Cycle of leaves 2/5: the angle of divergence between the leaves of two successive knots is 144°. The series is made up of pieces a/b/c as described above.

VI. Scattered Disposition. Cycle of leaves 3/8: the angle of divergence between two successive knots is 135°.

VII. The complete series comprising ns. I-VI.

Models of Vegetal Anatomy and Physiology

NOTICE. — *The following models made of our mixture are presented on a table with a prop at the back for vertical presentation to the pupils.*

131. THE VEGETABLE CELL and its parts (chart 25 x 24 cm.). This schematic model makes visible the nucleus and its structure, and a nucleole, besides the vacuoles and the plastids (of chlorophyll, chromatin, or still amyliferous).

132. PHASES OF MITOSIS. A series of models (chart 46 x 39 cm.) which demonstrates the principal phases of the division of the nucleus, beginning with the prophase, passing through the metaphase and anaphase and finishing with the reconstitution of the two nuclei.

133. DORSO-VENTRAL SECTION OF A LEAF (table: 46 x 39 cm.). The model shows — semi-schematically — the structure of a leaf typically dorso-ventral (as seen under the microscope). The 2 epidermis (the inferior one with stomata), the palisade tissue, the lacunar tissue, the section of a bundle of nerves (nervature), as well as a cyst an a small bundle of crystals of calcium oxalate (raphides) are well visible.

134. TRANSVERSAL SECTION OF A CAULIS of primary structure (dicotyledon) (table 46 x 39 cm.). The model shows the epidermis, the cortical cylinder, the pericycle, the circle of the collaterals with its phloem, xylem and ring of cambium, the primary pithy rays and the pith. The whole is represented schematically but with the greatest possible approximaton to life, expecially taking care of the right proportions.

135. TRANSVERSAL SECTION OF A CAULIS of primary structure (monocotyledon). Chart 46 x 39 cm. This model represents in particular the structure of the monocotylednous stem, the fasciate bundles being typically scattered, not in the way of a circle and rather closed (without generant zone).

136. TRANSVERSAL SECTION OF A ROOT of a dicotyledon on a chart 46 x 39 cm. The primary structure of the root is characterized by the presence of the epiblema with the radical hair, the suberic layer, the cortical cylinder, limited to the inmost part of the endoderm, by the central cylinder enclosed in the pericycle and presenting the fasciate bundles in ray-like disposition (xilematics) with sievelike cordons (phloematics), alternating with vascular rays.

137. TRANSVERSAL SECTION OF A PORTION OF THE TRUNK of a dicotyledon with secondary structure (chart 46 x 39 cm.). The cortical tissue is represented by the periderm with the phellogen below, by the cortical cylinder, by the secondary liber, the cambium and by the secondary wood. The wood of spring may be well distinguished from the wood of autumn; thus the annual rings, the pithy rays and the pith are visible.

138. LONGITUDINAL SECTION OF VEGETATIVE APIXES OF THE STEM AND THE ROOT. (Chart 46 x 39 cm.). As the study of the 2 sections is alike, they are united on one base.

139. THE FECUNDATION OF THE ANGIOSPERMS (Chart 46 x 39 cm.). The model is partly dissectible and represents apart from the course of the pollenic canal through the stigma and the style, and the characteristics of the embryonic bag, also the structure of a seed of the pollen (dissectible), as well as the germination of the same seed and the nuclei destined for fecundation.

140. OVULES: anatropic and orthotropic. Chart 46 x 39 cm. The models represent the ovules dissected longitudinally, and show their structure one at the side of the other, allowing the best way of studying and comparing. As type for the anatropic ovule the one of the Narcissus (*Narcissus poeticus*) was chosen, and as orthotropic ovule the one of the *Polygonum divaricaticum* was chosen.

141. CAMPYLOTROPIC OVULE. Chart 46 x 39 cm. This model reproduces the ovule of the cabbage (*Brassica oleracea*) which is the most representative of the campylotropic ovules.

bundles

142 - **TYPES OF GERMINATION**. The models show all phenomena, by means 5 types are represented: the collateral, bicollateral, concentric, open and closed types. Each of them shows the principal component parts: phloem, xylem, cambium (if it exists), sheath with bundle, and further particulars as the cortical and xylematic parenchyma, the endoderm etc.

TYPES OF GERMINATION. The models show all phenomena, by means of which the embryo of the seeds transforms itself into a new plant, similar to the one from which it originates. The series of our models gives a perfect and complete exposition — proceeding from comparison — of the germination of the following plants:

143. The wheat (*Triticum vulgare*) 1 piece.

144. The bean (*Faseolus vulgaris*) 3 pieces.

145. The pine (*Pinus pinea*) 4 pieces.

146. Complete series comprising the 3 models (8 pieces) on one base. These models are sold separately or as

Models of the Biology of Parasitic Plants

Series of plastic models (size 46 x 39) which reproduce — considerably enlarged — the biologically and anatomically most important parts of the plant. The models are made of our special mixture, in vivid and persistent colours with short and clear directions. Each model has a holder for vertical presentation on the back. The models illustrating the biology of the following parasitic plants are available:

147. The Mistletoe (*Viscum album*) and its parasitism.

148. Cuscuta epithymum and its parasitism.

149. The Orobanche (*Orobanche minor* or other species) and its parasitism.

150. The spurred rye (*Claviceps purpurea*), its effects and its biology.

151. Tilletia tritici and **Tilletia levis**, their effects and their biology.

Prepared on charts made of a special mixture; types and measures as before.

152. CORN RUST. The biology of the 3 most dangerous types of corn rust are represented in detail, partly by means of natural specimens, partly by means of numerous models:

a) Linear rust (*Puccinia graminis*);

b) Striped Rust (*Puccinia glumarum*);

c) Oats rust (*Puccinia coronifera*).

The models show the characteristics of the rust-fungi as seen under the microscope.

153. THE PORONOSPORA OF THE VINE (*Plasmopara viticola*). This model contains the reproduction of a leaf afflicted by the sickness and models in relief representing — considerably enlarged — the vegetative system (mycelium) of the parasitic fungus and its reproductive organs: sexual (oogonium, antheridium, oospores) and asexual (zoosporanges, zoospores).

154. THE BACILLUS LEGUMINOSARUM and its biology. The model comprises: the root of the Leguminosae with tubercles on the roots; the enlarged tubercles; a dissected tubercle; a portion of tuberculous tissue with bacteroids; bacteroids; a diagram of the utilisation of atmospheric nitrogen, its fixation in the tubercles, and their absorption by the cereals. The models are represented enlarged.

155. THE PERONOSPERA OF THE POTATO AND THE TOMATO (*Phytophthora infestans*). The model comprises: a potato and a tomato leaf affected by the sickness; an infected tomato fruit; an infected tuber of the potato plant; mycelium and sporangiophores of the fungus; zoosporanges and zoospores; infection by a zoospore by way of a stoma.

156. THE CRYPTOGAM OF THE VINE OR VINE MILDEW (*Oidium tucheri*). A series of small models — enlarged from 700 to 2250 times — almost all of them removable from the base where they are held together by metallic rods. The following stages are shown: conidic form — conidium in germination — ascus enlarged with spores.

Models of Techtonics

NOTICE. — *These models, made of our special mixture, convey a clear idea of the principal disposition of the terrestrial layers.*

157. **HORIZONTAL STRATA.** 158. **INCLINED STRATA.**

159. **NORMAL ANTICLINES AND SYNCLINES.**

160. **OBLIQUE AND LYING ANTICLINES AND SYNCLINES.**

161. **CONCORDANT AND DISCORDANT STRATA.**

162. **FRACTURES AND DISLOCATIONS.**

Each model is provided with an ample description. The charts at the base have measures in proportion to the dimensions of the models (min. 23 x 39 cm.; max. 37 x 57 cm.).

Plastic Models of Ethnographical Types

THE FIVE ETHNOGRAPHICAL TYPES, artistically modelled from life in plaster. Half busts, coloured, c. 27 cm. high):

164. **CAUCASIAN TYPE.** 165. **MONGOLIAN TYPE.**

166. **ETHIOPIAN TYPE.** 167. **AMERICAN TYPE.**

168. **MALAYAN TYPE.**

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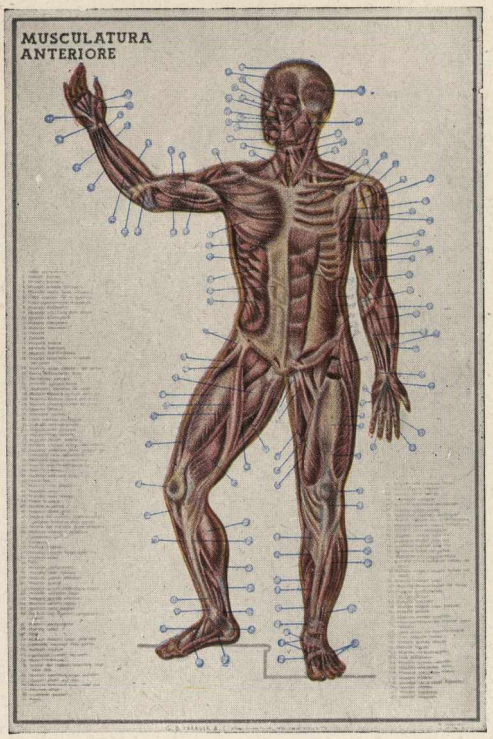
PARAVIA - Torino (Italia)



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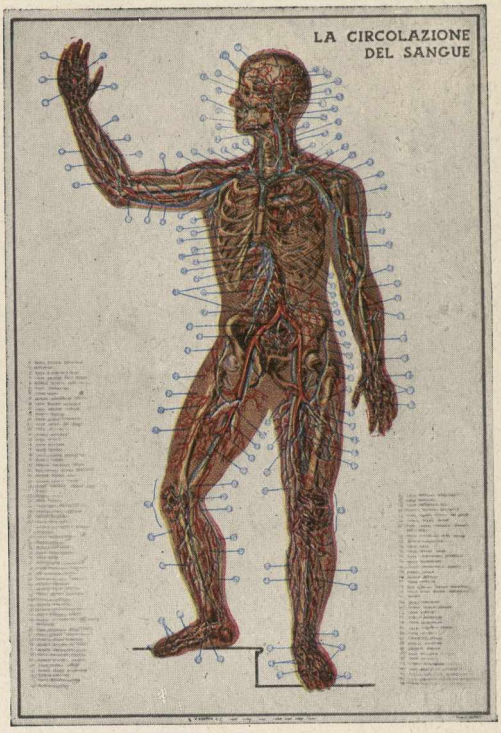

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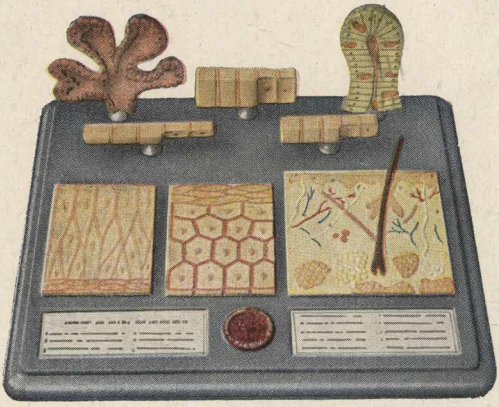

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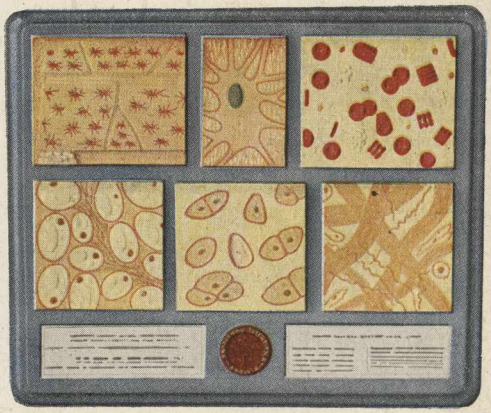

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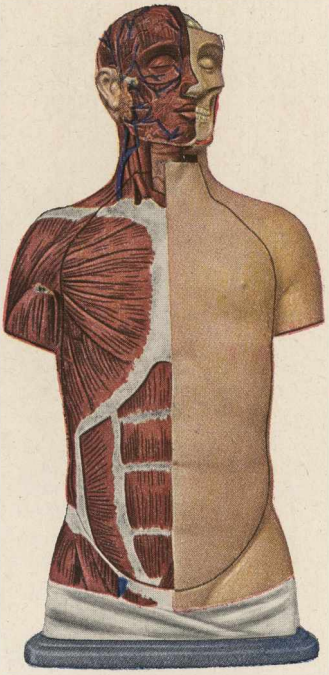

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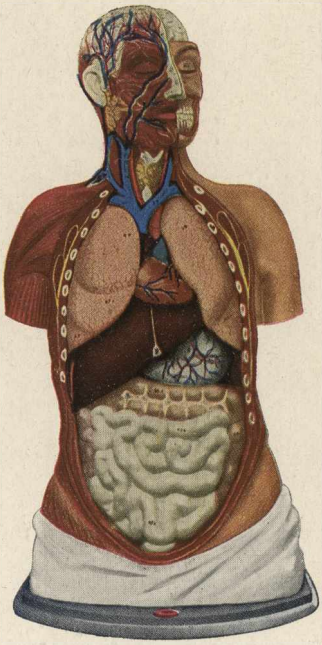

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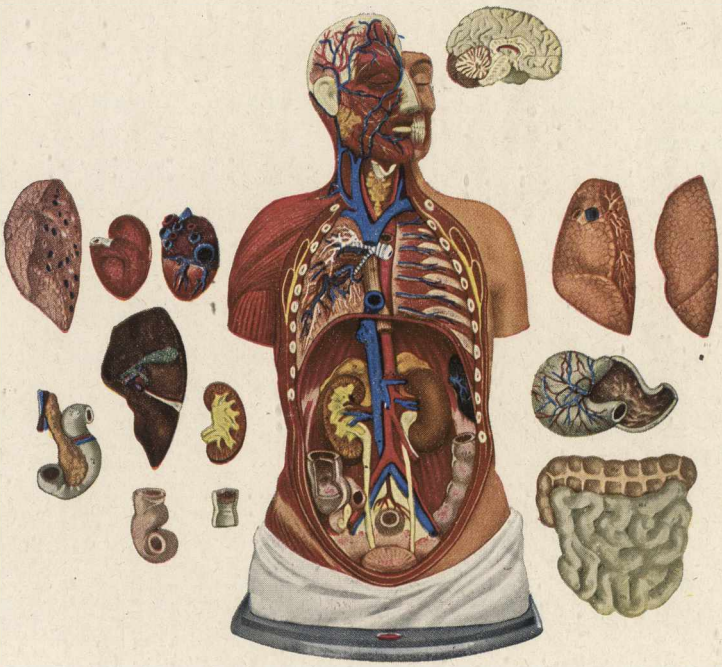

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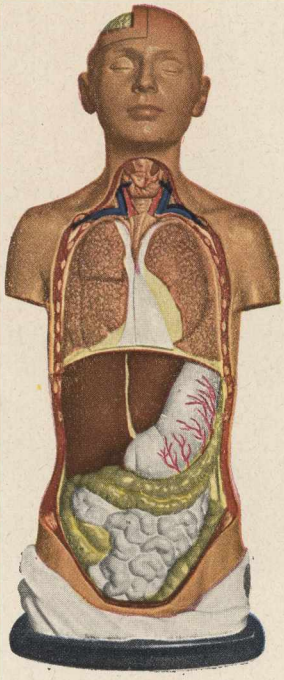

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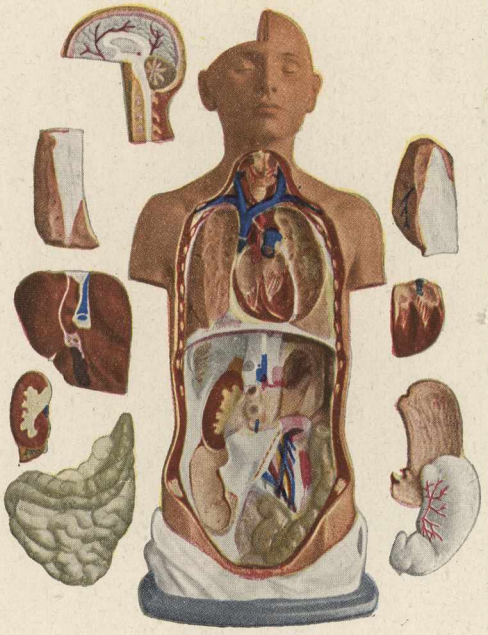

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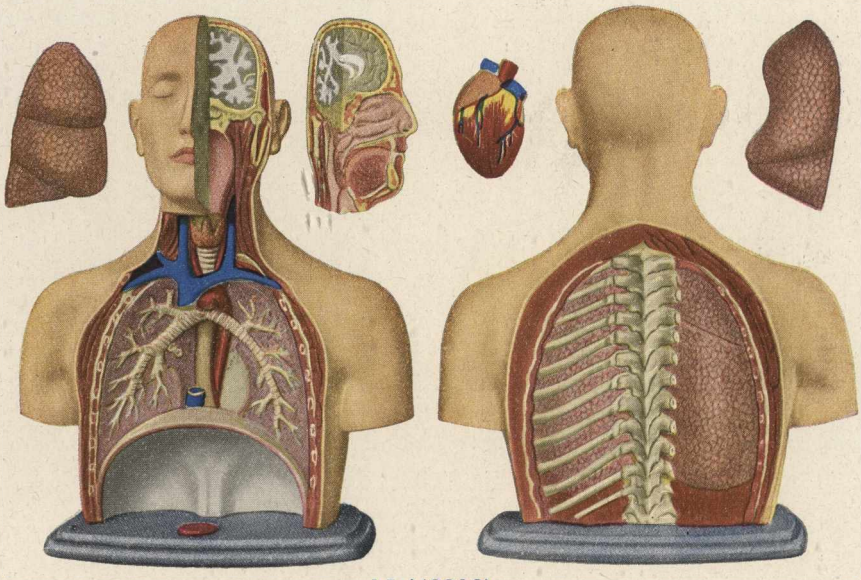

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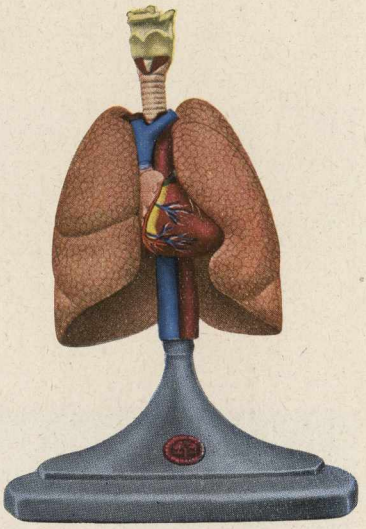

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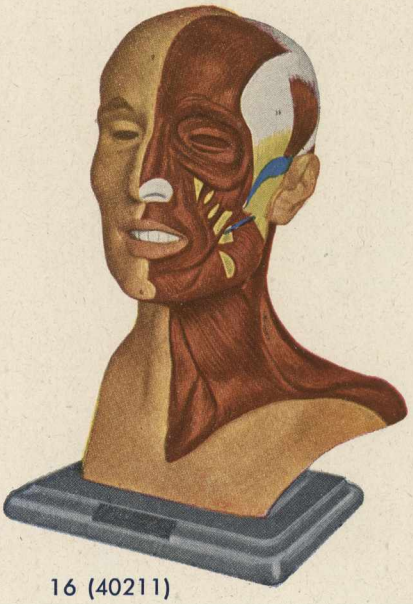

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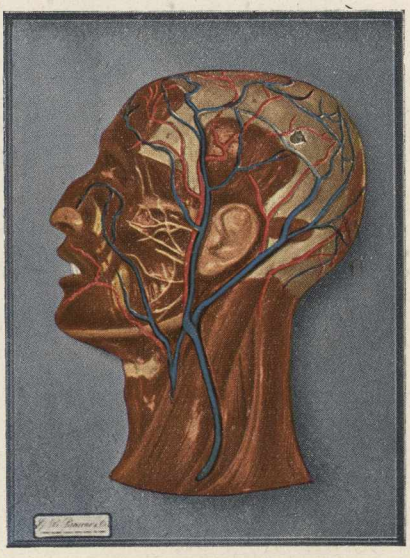

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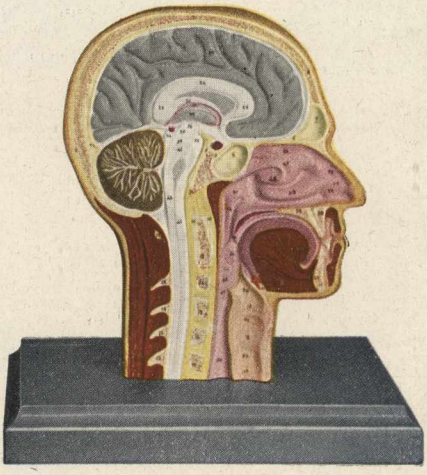

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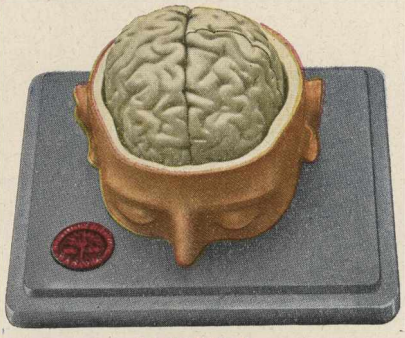

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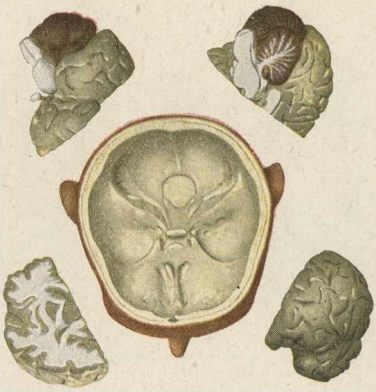

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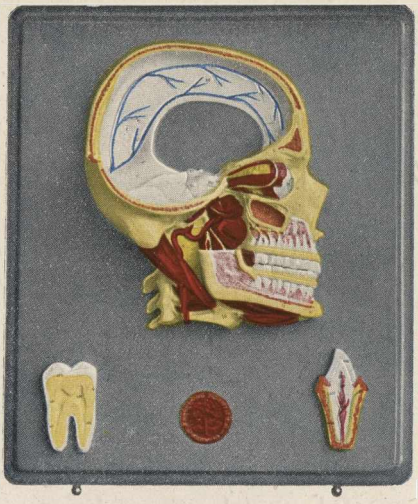

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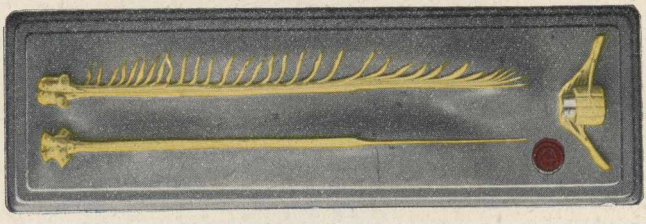

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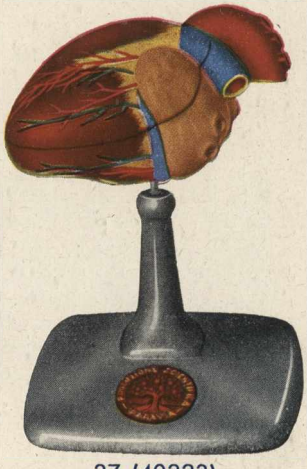

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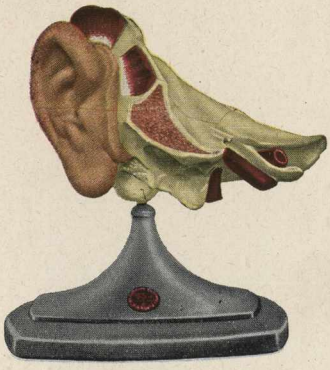

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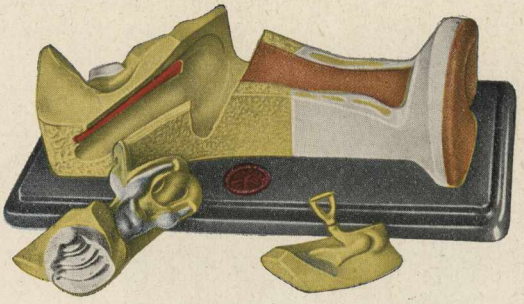

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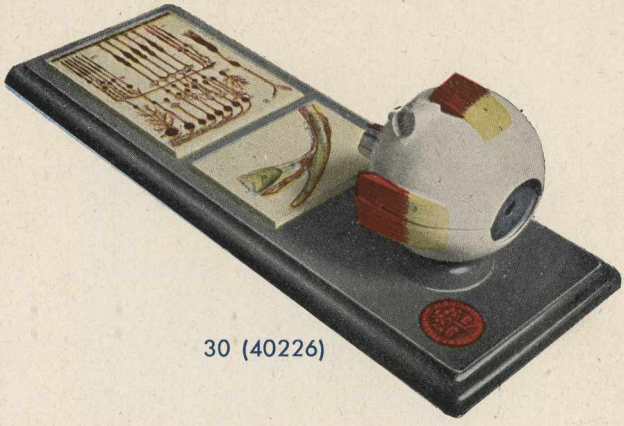

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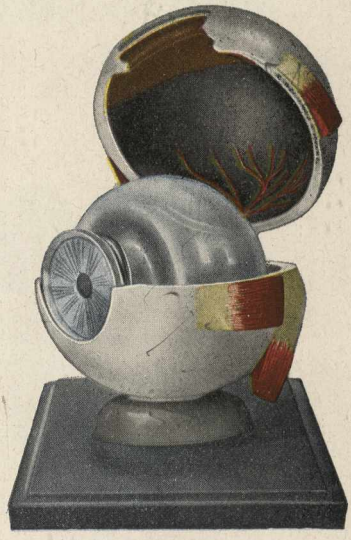

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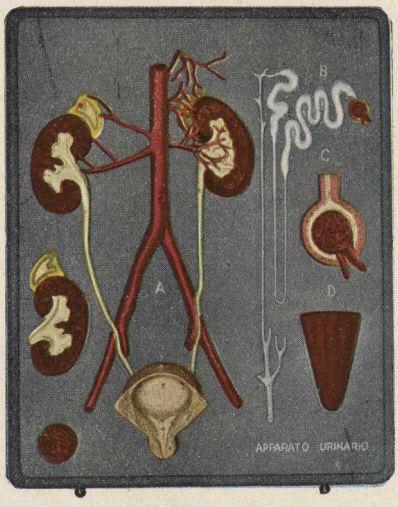

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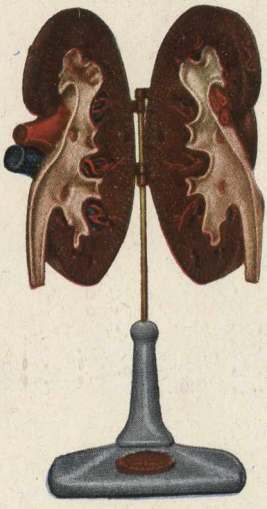

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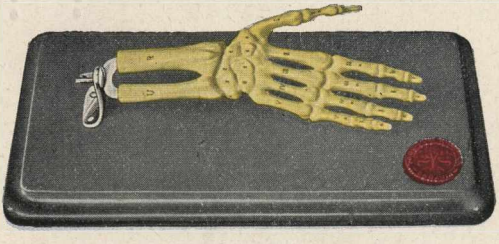

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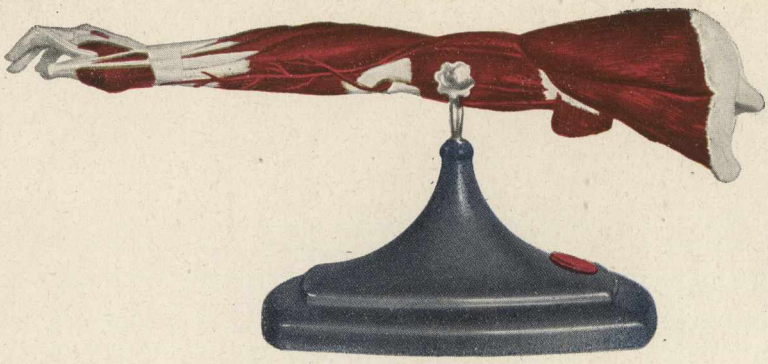

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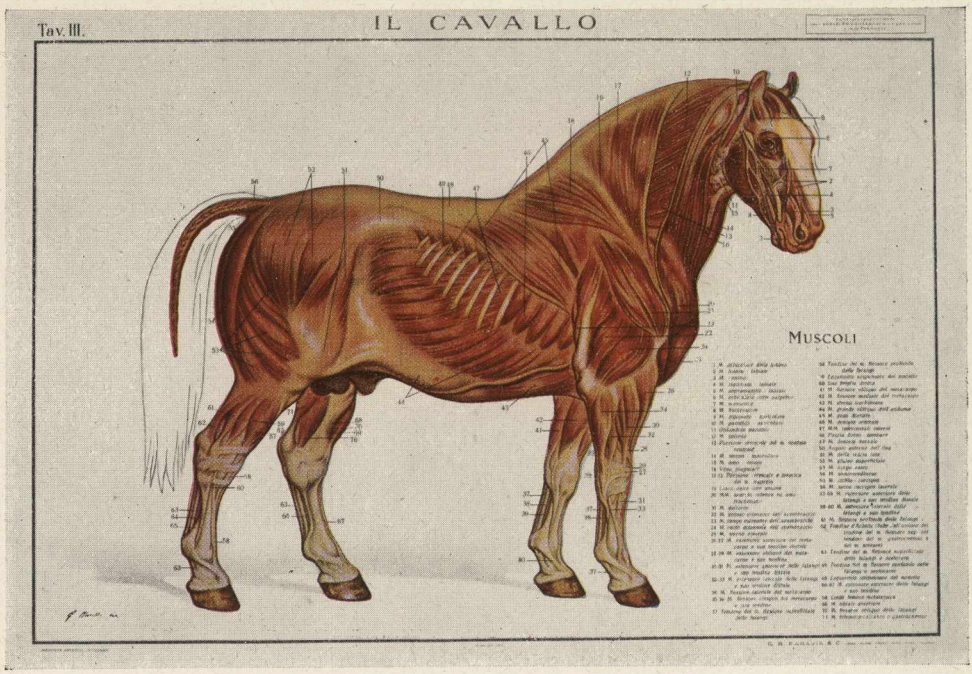

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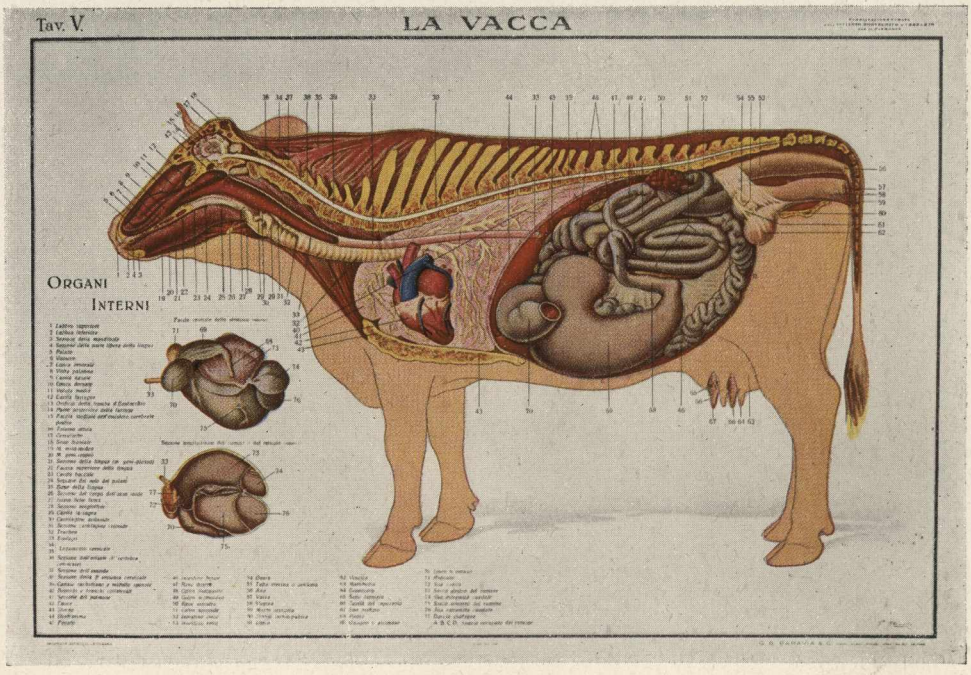

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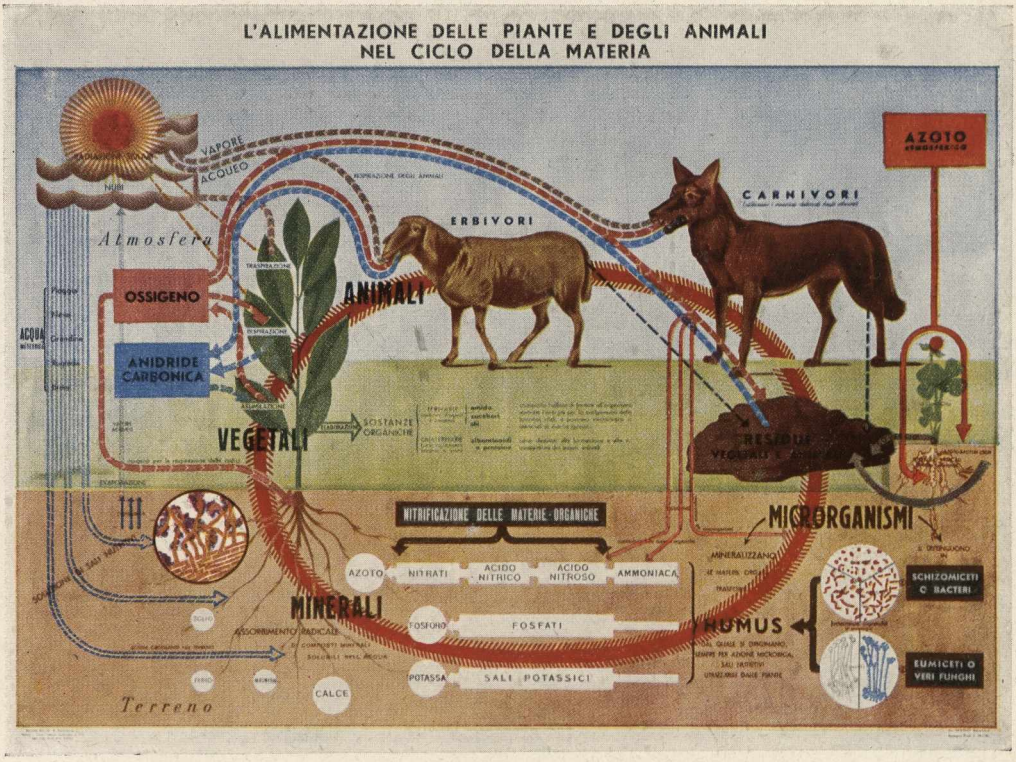
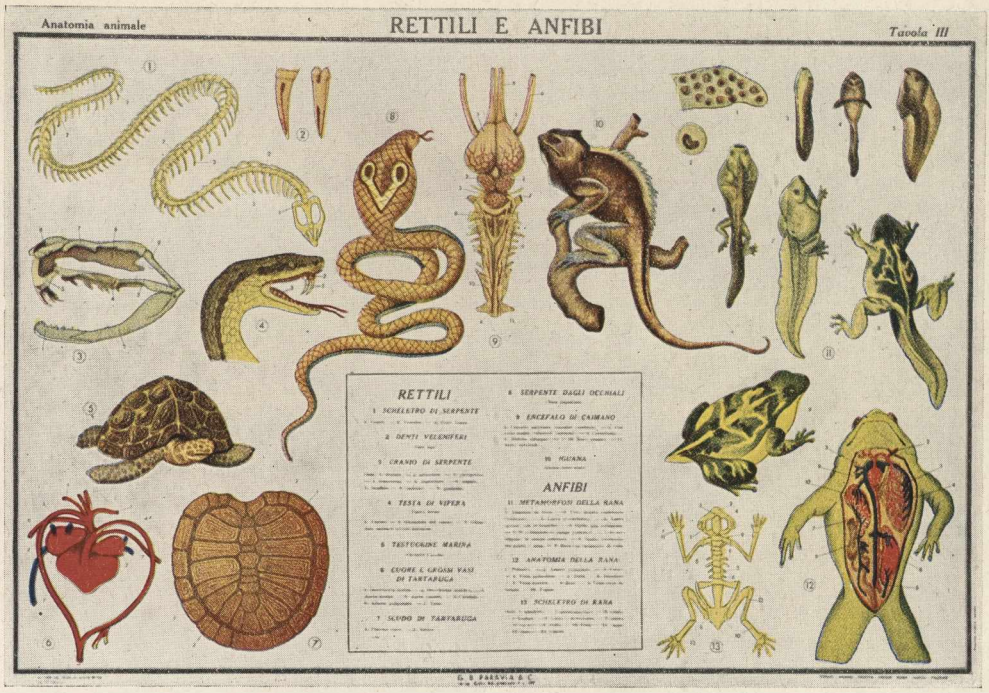
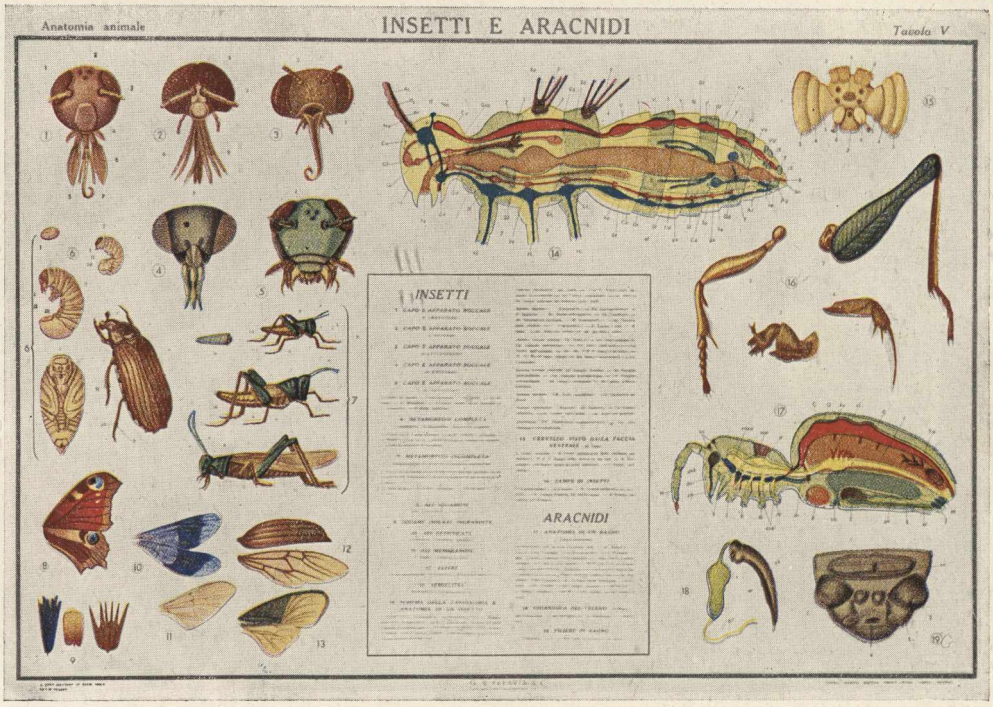


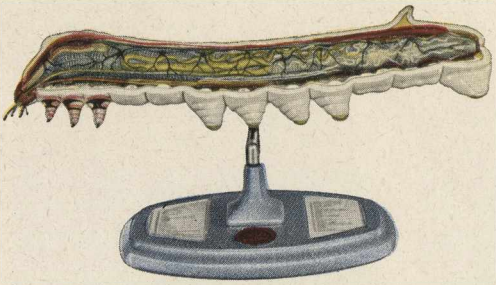
56 (40428)



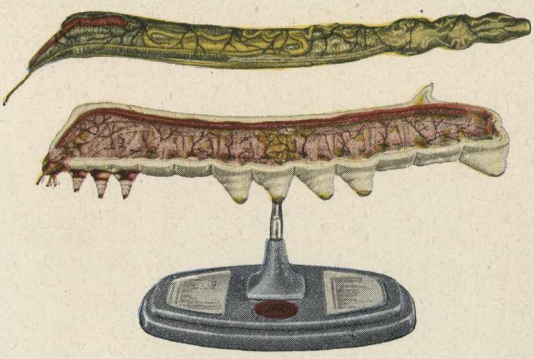
56 bis/III (40433)



56 bis/V (40435)



57 (40600)



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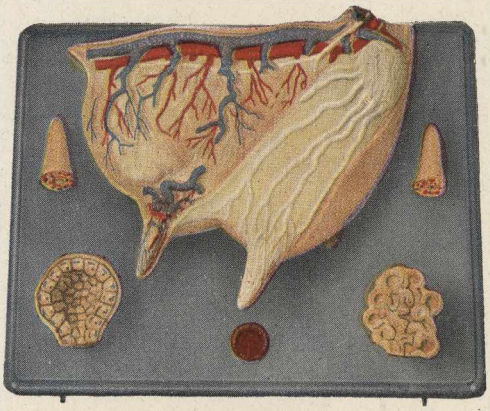
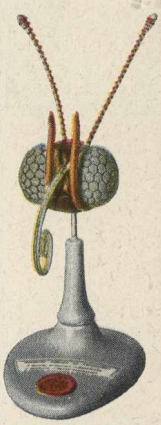


57 bis (40601)

59 (40603)



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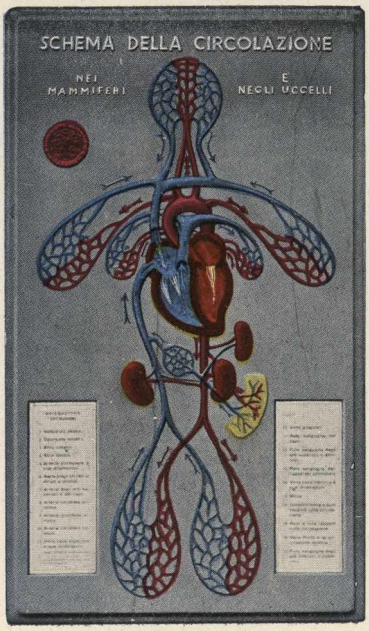
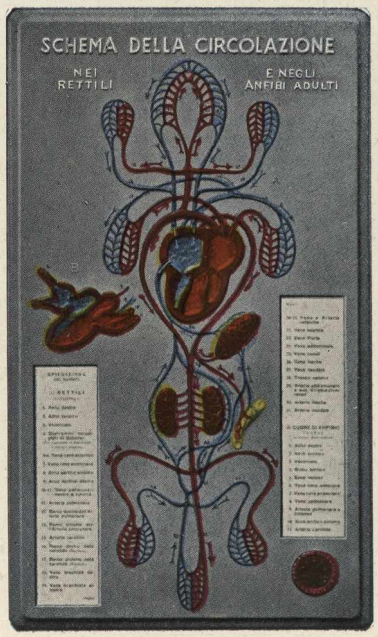


64 (40609)



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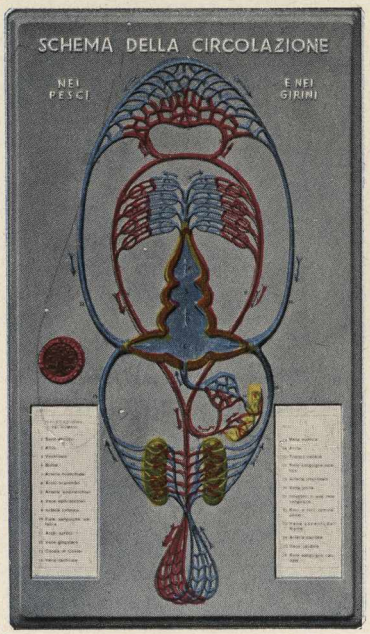
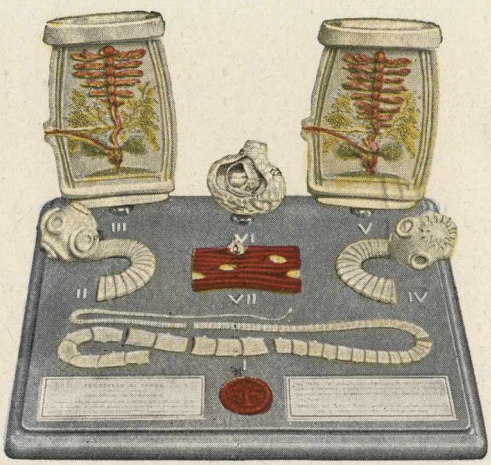


66 (40611)

67 (40612)



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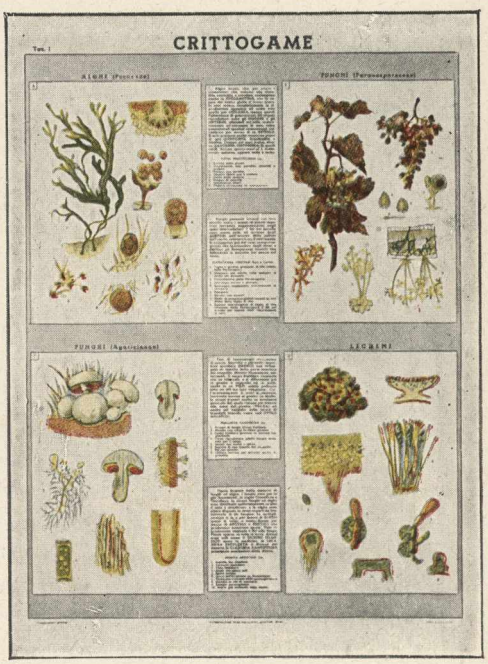

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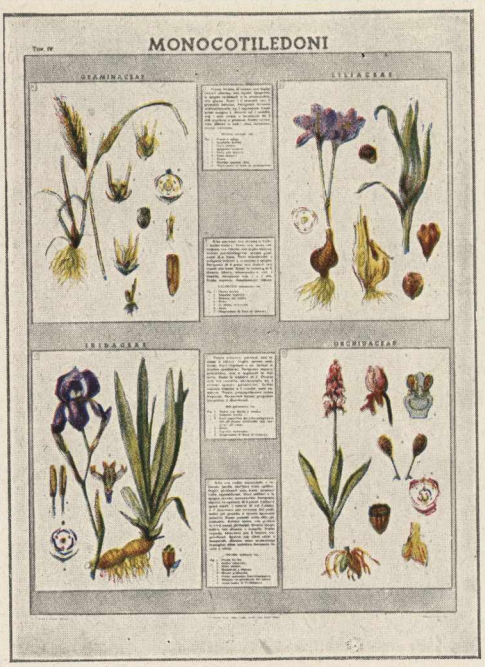

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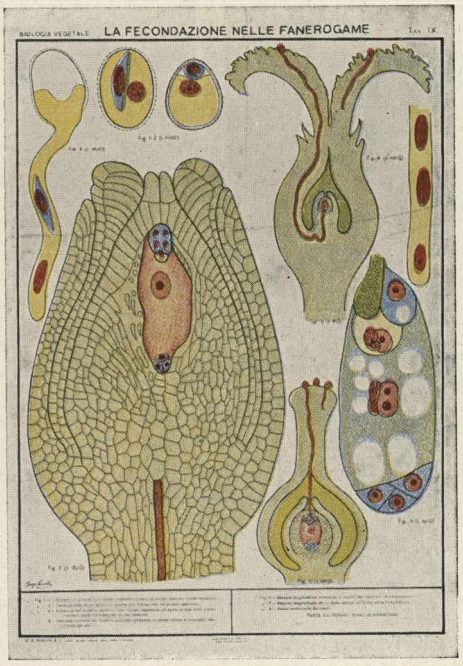

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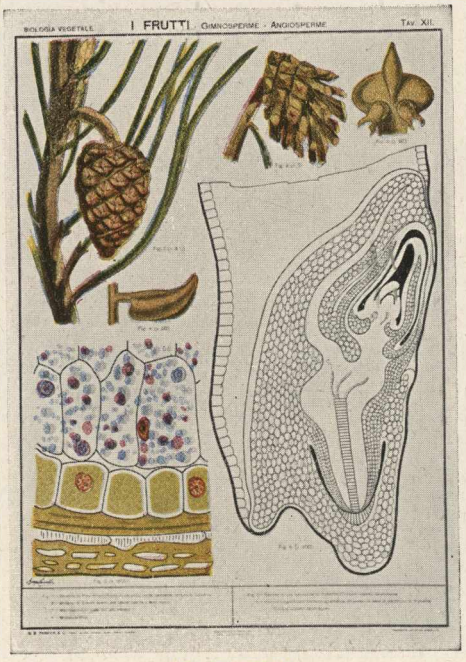

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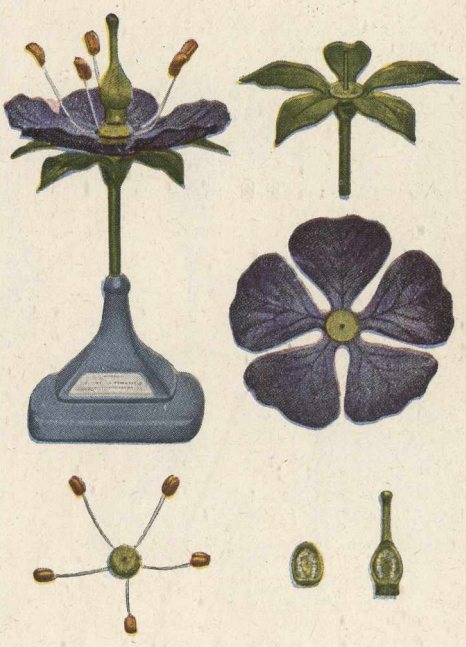

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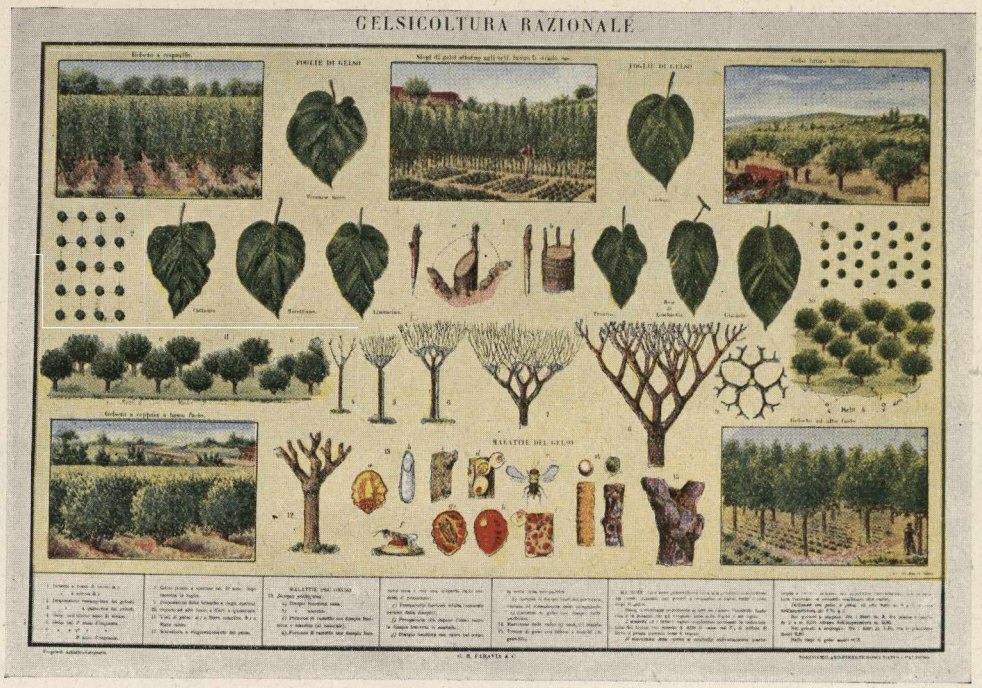

94 (42408)

96 (42451)

97 (42501)

98 (42502)

99 (42504)

100 (42505)

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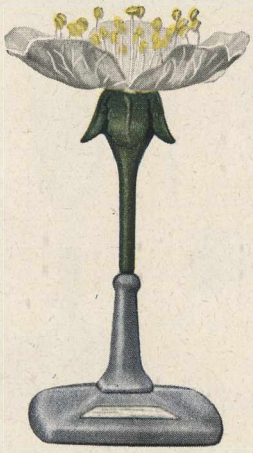

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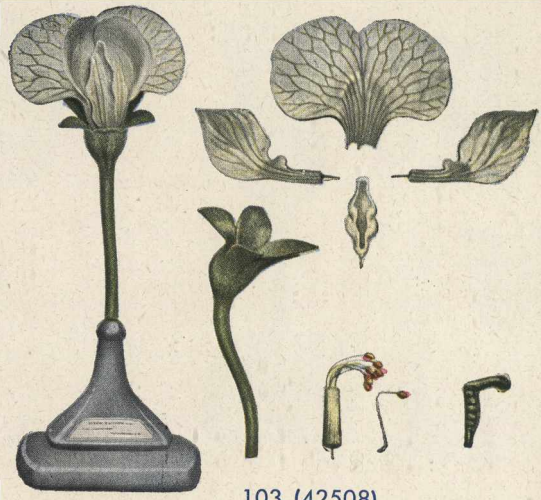

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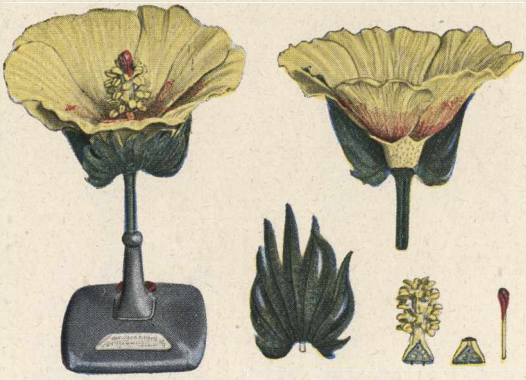

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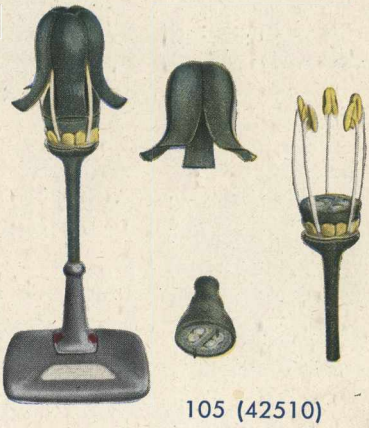
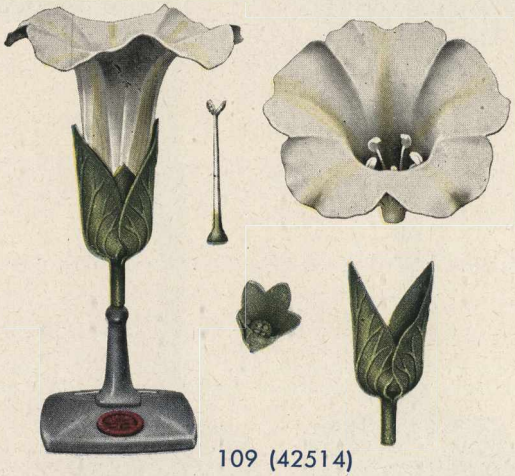


105 (42510)

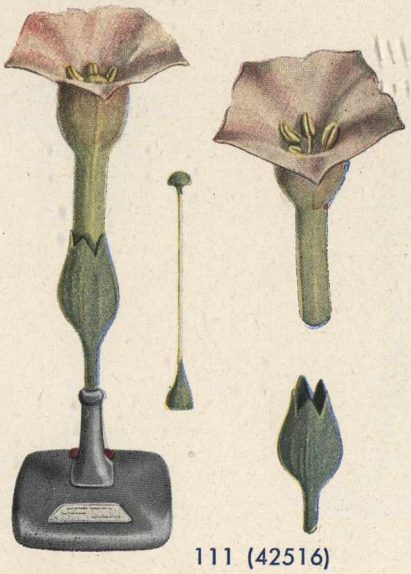
106 (42503)

107-108 (42511-42512)



109 (42514)

110 (42515)



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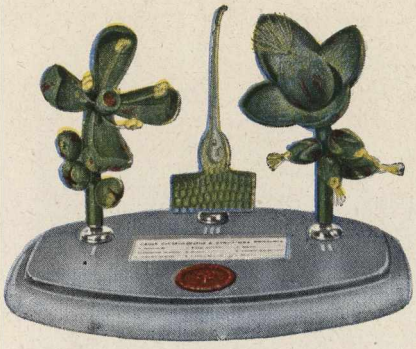
112 (42517)



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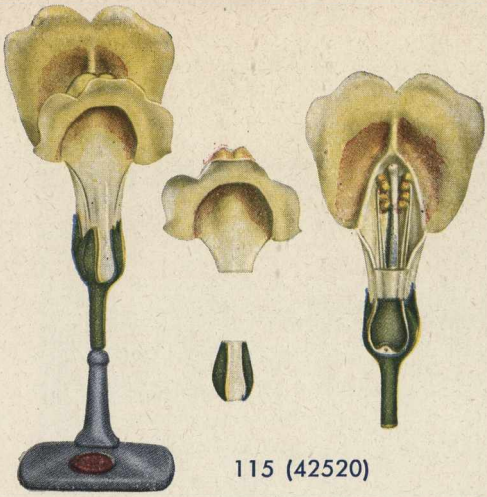
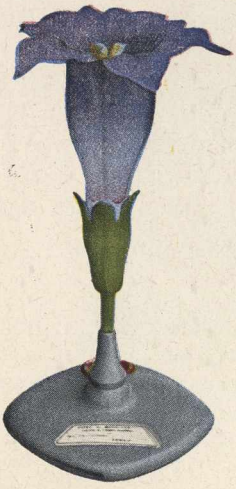


115 (42520)

113 (42518)

116 (42521)

117 (42522)



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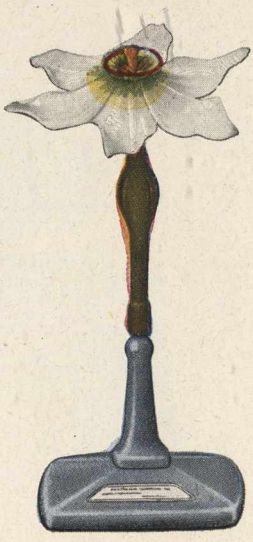

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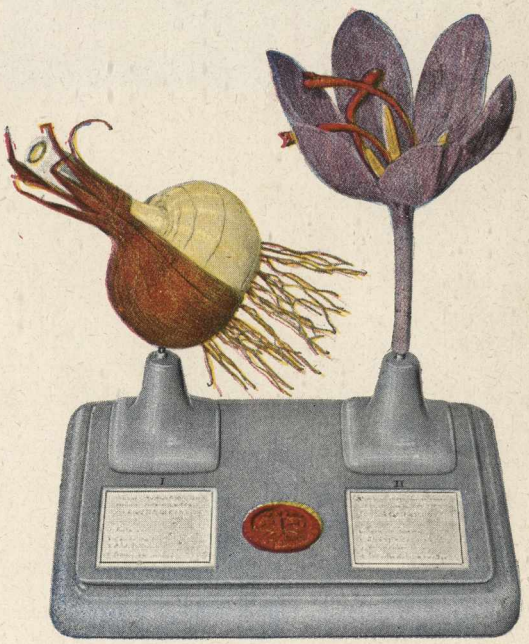

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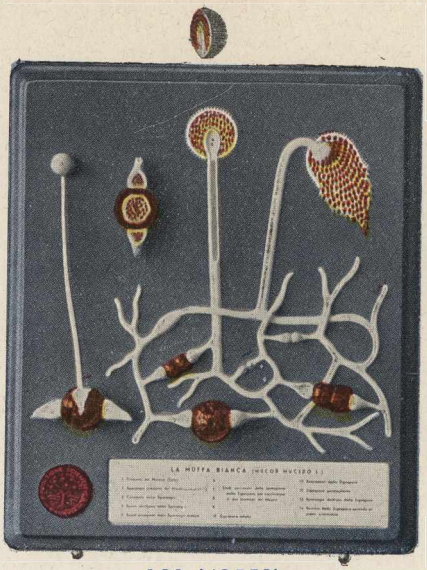

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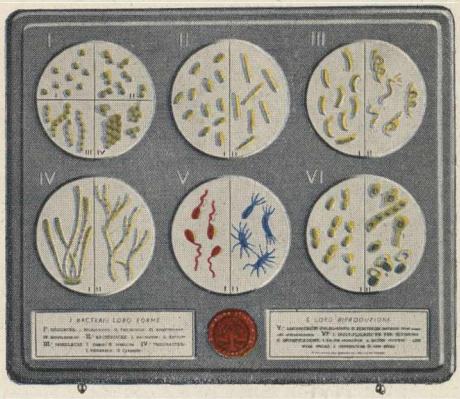

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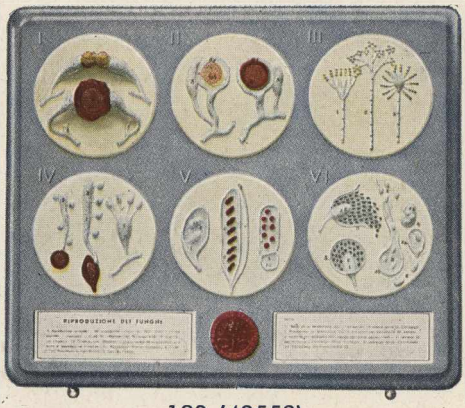

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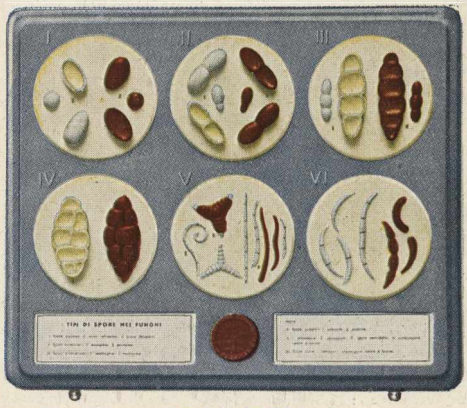
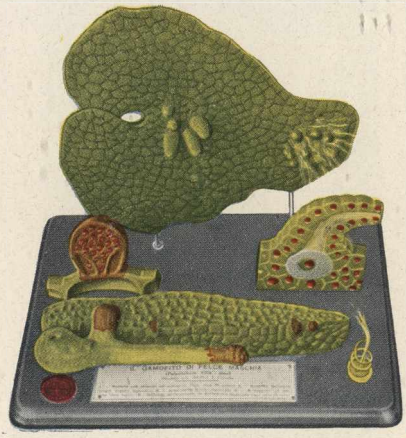
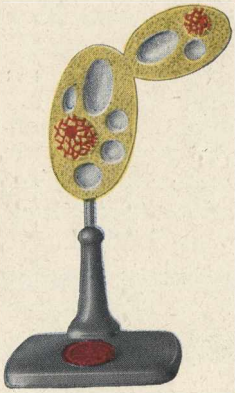


124 (42553)



125 (42554)



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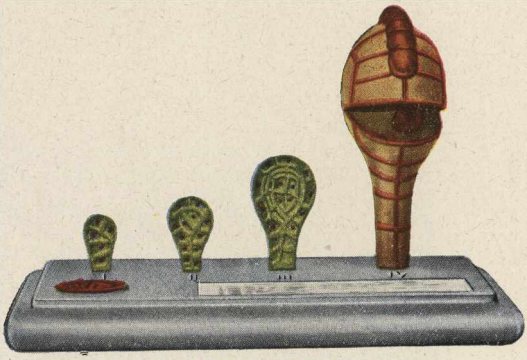

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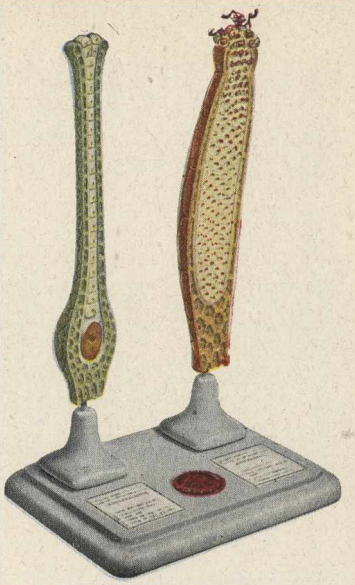

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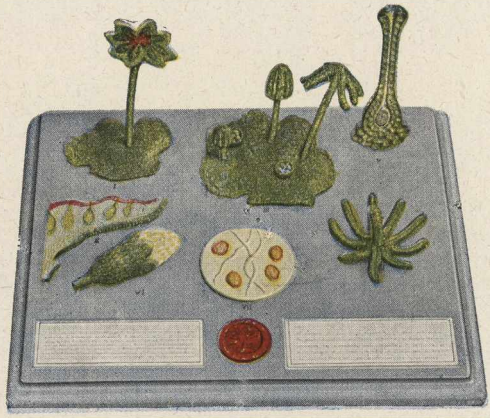
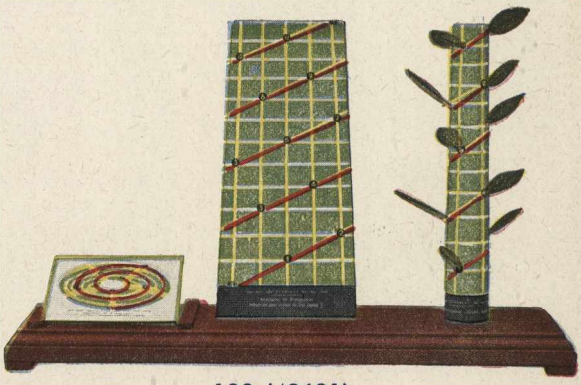
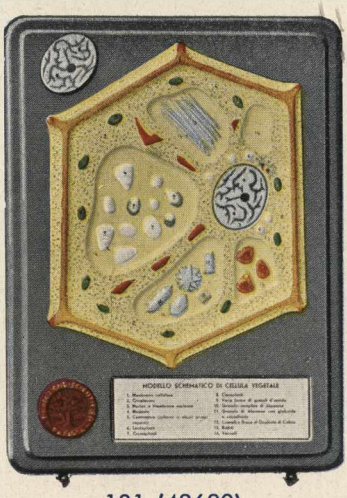


129 (42558)

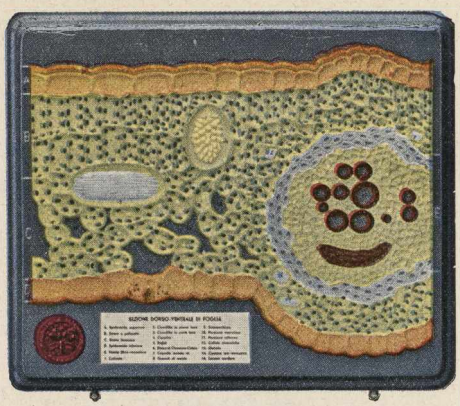


130 (42601)

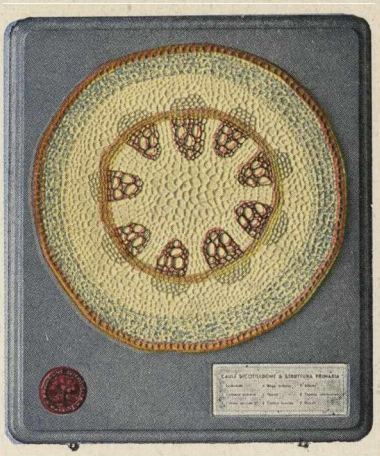


131 (42620)

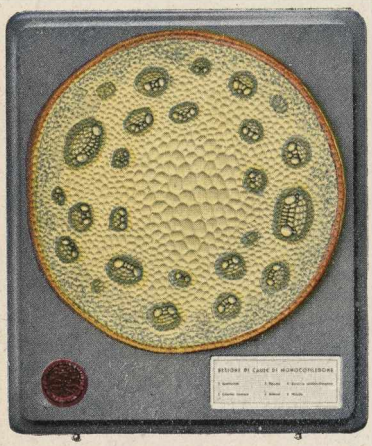
132 (42621)



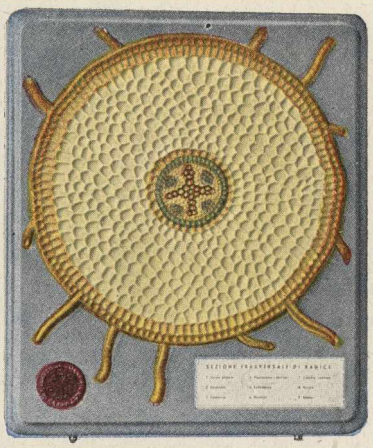
133 (42622)



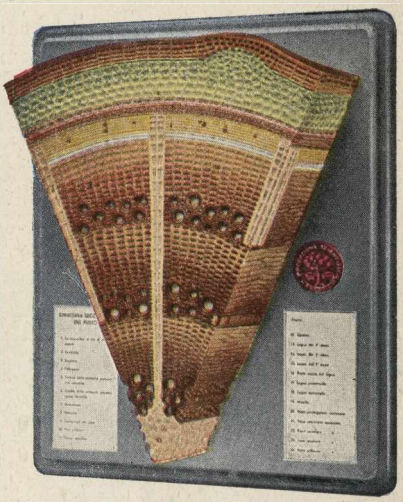
134 (42623)



135 (42624)

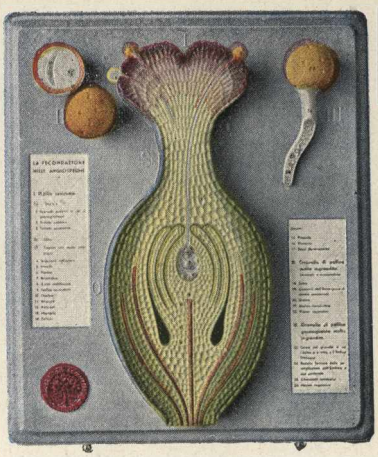


136 (42625)

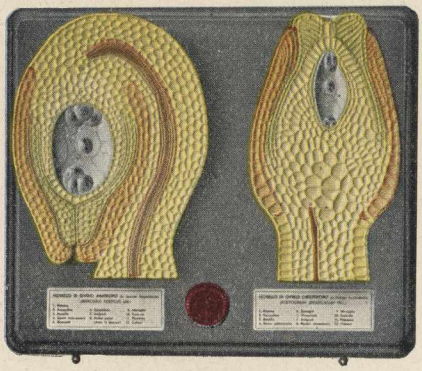


137 (42626)

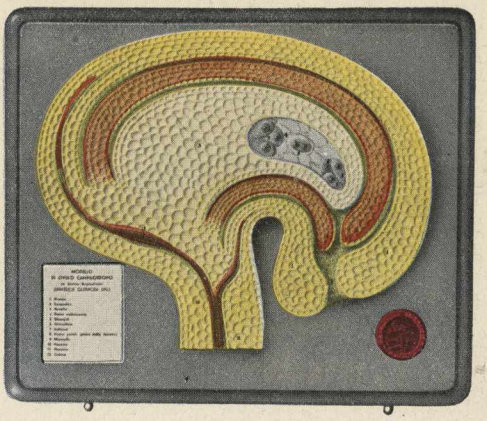
138 (42627)



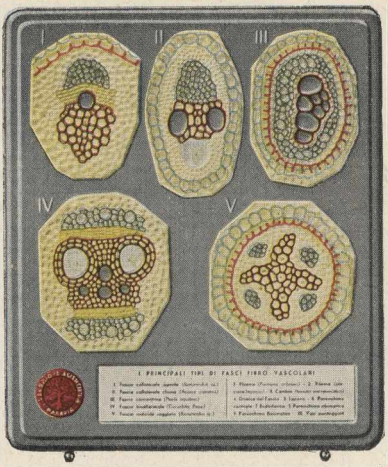
139 (42628)



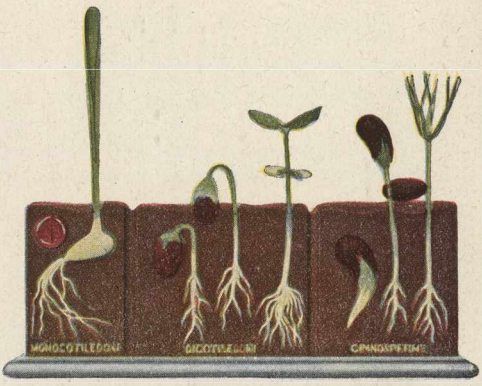
140 (42629)



141 (42630)



142 (42631)



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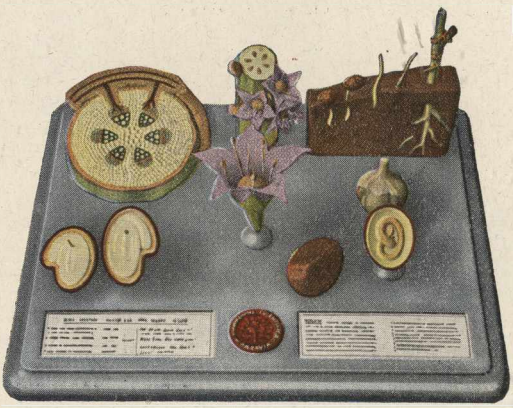
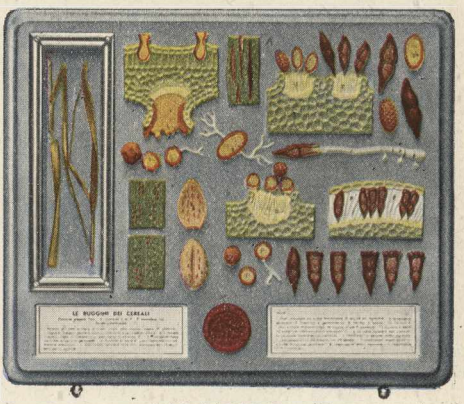


148 (42871)



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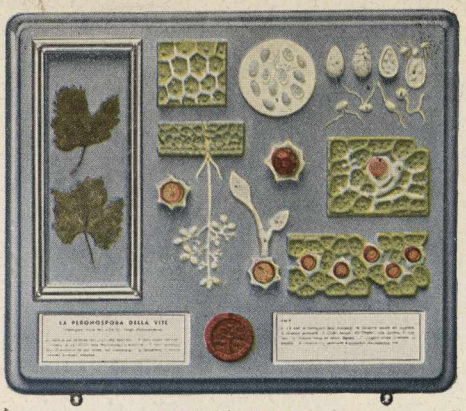

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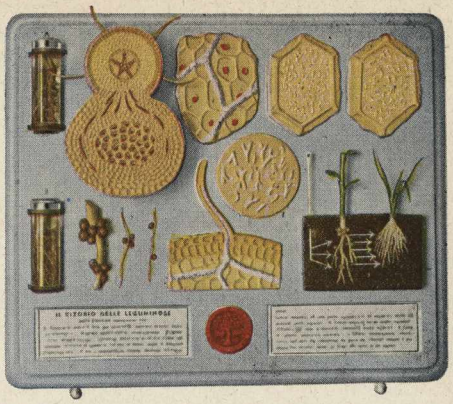

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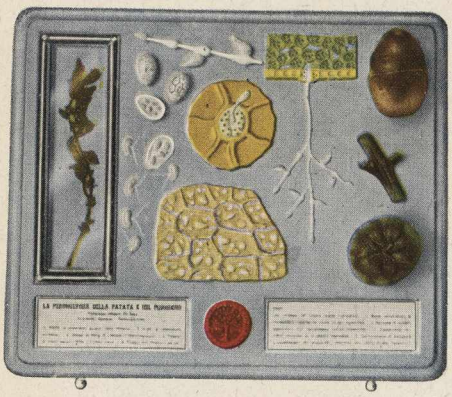

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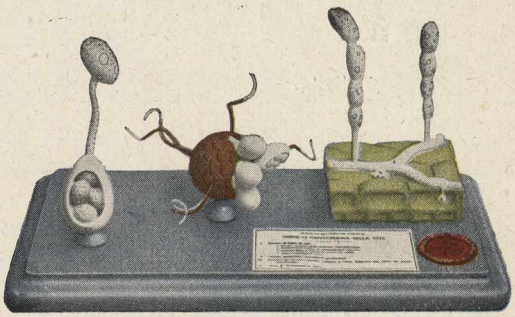

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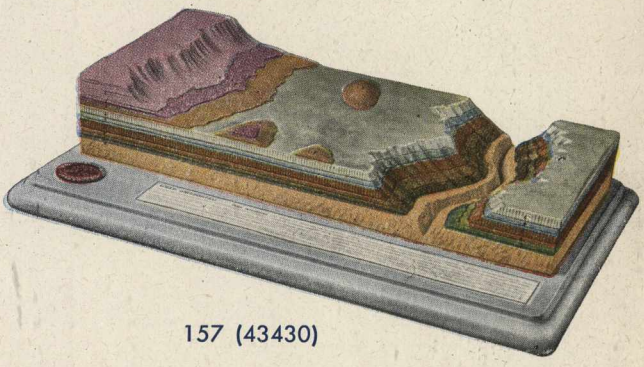

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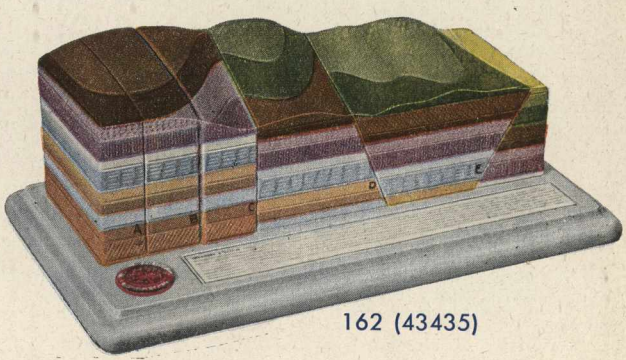

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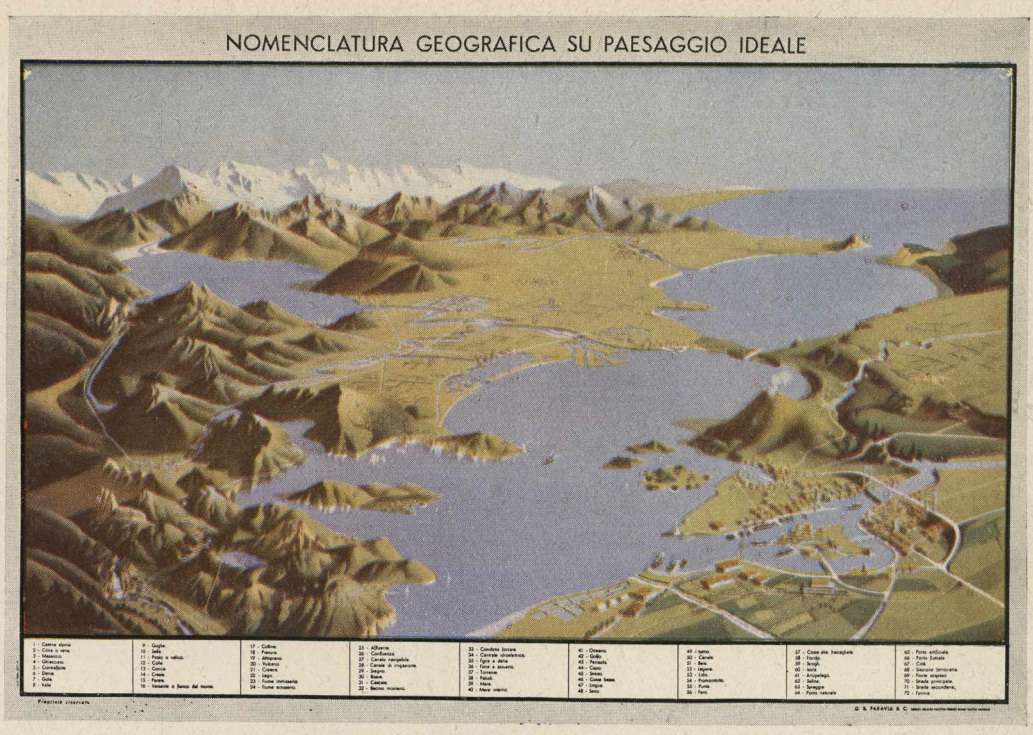
NOMENCLATURA GEOGRAFICA SU PAESAGGIO IDEALE



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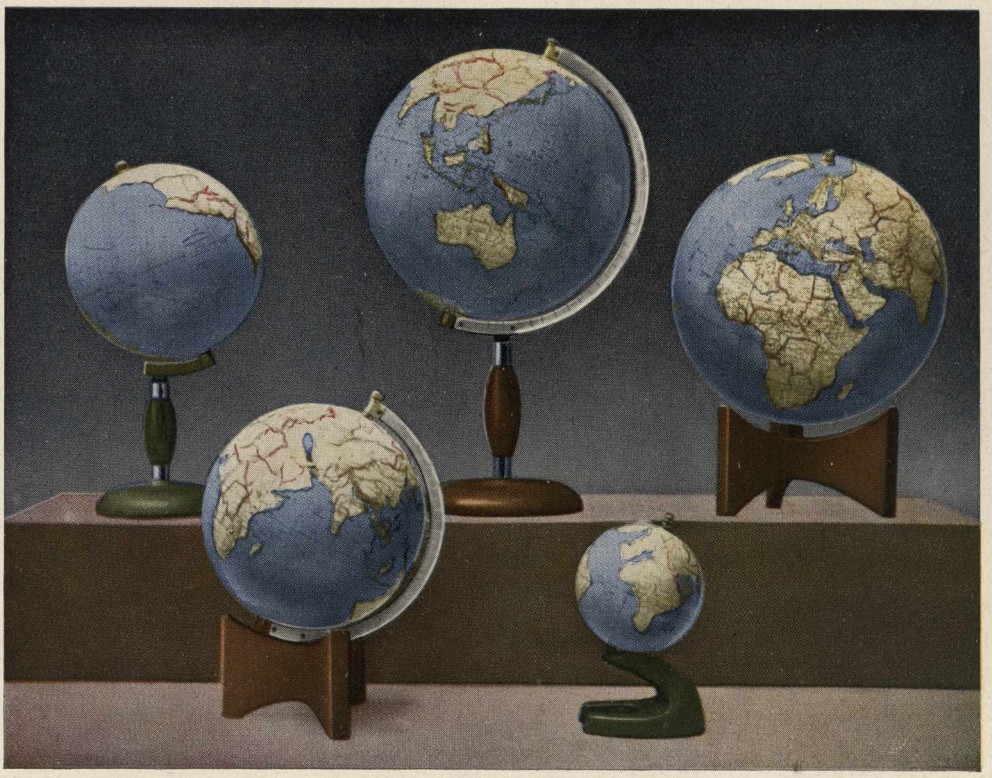

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